The Builder.

VOL. XVI.—No. 824.

Sanitary Improvements v. *Contagion.*
Discussion with Dr. Greenhow.

NOW is certainly not the moment for sanitary reformers to be drawing back, and qualifying opinions which are beginning to be appreciated and work momentous good. In the paragraph which seemed sufficiently erroneous to Dr. Greenhow to induce him to caution us against the teaching, we simply pointed out* the great increase in the metropolis of scarlatina, which we called a preventable disease, and urged that those to whom the health of parishes is entrusted should note carefully the localities in which fever prevails, and make them the scene of sanitary improvements during the cool weather. Dr. Greenhow surely cannot wish it to be inferred, from his communications in reply to this advice on our part, that it is not desirable to follow it? We feel certain he does not; nor do we think, although he talks somewhat slightingly of "sanitary amateurs," that he desires to disparage their efforts: but we would ask him to recollect how greatly the cause has been advanced by many who may be thus designated, and how desirable it is not to weaken their hands, but to strengthen them,—how important it is not to afford further pretences to the foes of sanitary improvement. We grieve sincerely that Dr. Greenhow should have been led to do so, and can assure him that many of his medical brethren agree with us, five or six having written to us to that effect. The medical officer of St. George the Martyr, Southwark, for example (Mr. Rendle), says,—

"I was surprised to see in your columns, a week since, a letter from Dr. Greenhow, who is so justly respected by us all. In this instance I fear he misleads us. The parish to which I act as medical officer has been severely visited with scarlet fever, and I have made it a feature of my quarterly report, just delivered to the vestry (an unwilling vestry so far as the majority goes). I beg to hand you a portion published in our local journal. You will also see how a vestry, acting for one of the sickliest parishes in London, can hesitate as to sanitary improvement."

Dr. Greenhow goes on to say that a close, ill-ventilated, over-crowded room is unfavourable to recovery, and that the emanations from the sick are likely to be more active than in places where proper ventilation dilutes them; but, he continues, apart from this "indirect influence," "such unfavourable circumstances seem to exercise no influence over either its intensity or its course." We can scarcely reconcile the two statements, and what does Mr. Rendle say in his report?—

"Putrid complaints are undoubtedly very fatal among us, and each week brings news of their progress. Typhus does not abate. *Scarlet fever*, measles, complications known as diptheria, putrid sore throat, and the like, increase: they affect localities where putrid emanations arise with all their usual disease-producing accompaniments: they concentrate, become more putrid, and then shift their seat to some other spot more or less favourable to the untoward influences."

And, again:—

"Providence does not intend that reservoirs of stinking putrid matter shall stand so close to the poor man's door as to infest him at bed and at board: truly these diseases may come by other agencies than putridity, and may happily give immunity for the future, as they most of them occur but once; but when they enter where foul air is, they become too often deadly, and those epidemics now visiting us point this truth out in a remarkable manner."

So, too, the medical officer of Clerkenwell, in a recent report, says, speaking of three deaths from scarlet fever which occurred in one family, that it was found that the children had been sleeping in a damp kitchen, or rather cellar, several feet below the ground, in contact with a cesspool filled with foul filth. The children in the upper part of the house recovered. Statements to the same effect are numberless, and are consistent with our knowledge of the rise and spread of fevers generally.

In reply to our previous observations on his letter, Dr. Greenhow has favoured us with another communication, which we now print:—

Having had practical experience (says the Doctor) of the evils arising from exaggerated expectations of the benefits derivable from sanitary exertions, I ventured to send you an article on scarlet fever. In that communication I said, "No one, so far as I know, has ever been able to trace scarlet fever to any other origin than intercourse, either direct or indirect, with persons already sick with that disease." To this doctrine you demur. You allege that it is not sanitary doctrine. Now, unhappily for sanitary progress, sanitary doctrine is of two kinds: on the one hand, there is a doctrine of sanitary amateurs; on the other hand, there is the doctrine of the medical profession, which has devoted its attention to the cure and prevention of disease. My doctrine is of the latter class, and I confidently appeal to medical experience for its confirmation. By way of elucidating the matter to those who are unacquainted with medical science, I beg to state an example of the kind of facts from which we, who are skilled in the study of disease, draw the opinion contained in the above-quoted extract from my previous communication. It is true the disease to which my illustration has reference is not scarlet fever; but the expression I used is equally applicable to measles and small-pox as to scarlet fever.

In mid-ocean, between the Orkney Islands and Iceland lie the Färoe Islands, a dependency of the Danish crown. Remote from the ordinary track of commerce, the inhabitants of these islands have but little intercourse with the outside world. The population of the islands amounted to nearly 8,000 persons in 1845. The public health of Färoe is singularly good, for (excluding the deaths of children under ten years of age), the largest mortality takes place between the ages of eighty and ninety years, and of every 1,000 deaths, 349 are deaths of persons who have passed their seventieth year. From their isolated position, the inhabitants of Färoe have escaped for long periods the ordinary contagious diseases. Small-pox last prevailed in 1705, and then with such severity that the entire population of one island was swept away. Scarlet fever has never been introduced into Färoe. Measles prevailed in 1781, and not again until 1846, when it was introduced by a person from Copenhagen, who arrived in Färoe with the disease in its incubative stage. Between the 4th of April, when this person first manifested unequivocal symptoms of measles, and the 17th of September following, when the last case occurred, nearly 6,000 persons were affected by the disease, being very nearly all those then alive who had not had the disease in 1781. Some old people who had escaped in 1781, suffered from measles in 1846, and a few younger persons resisted the contagion, although constantly exposed to it. Of the elderly people who had suffered from measles in 1781, not one was attacked in 1846. Upwards of 100 persons died of the epidemic, and the average annual death-rate of 15·4 per 1,000 was raised to 32·1 for the first eight months of 1846. The mortality of sexagenarians in that year was raised five-fold, but the mortality rapidly declined after the sixtieth year, as Dr. Panum—the Danish sanitary commissioner, from whose report this account is derived—very justly observes, not because the epidemic was less fatal to persons of more advanced age, but because those elderly people who had had measles in the earlier, altogether escaped in the later visitation.

Thus, then, these contagious diseases chiefly prevail among the young in this country, *not* as you assert, because "young people appear to become liable to them from sanitary defects, which produce comparatively little evil to grown-up people," *but* because almost every person is once in life, but usually only once in life, susceptible to their contagion, with which most persons in this country are brought into direct or indirect relation at an early age.

It is the characteristic of preventable diseases that they are partially distributed. In some districts they are almost unknown: in other districts they produce a large mortality. Even you, as a popular observer, may recognise the broad difference between the two classes of disease. Typhoid fever, cholera, the convulsive diseases of infants, and certain pulmonary diseases, for example, are partially distributed, producing here a large and there a comparatively small mortality, and their prevalence can be connected with well-defined local influences. Measles, scarlet fever, and, except for vaccination, small-pox prevail everywhere in England; and I contend that their prevalence cannot be referred to any local cause. These diseases are, indeed, frequently absent from particular districts for longer or shorter intervals; but such immunity, as in the case of the Färoe Islands, is liable to be compensated by their wider diffusion when they re-appear. An example of this recently came under my personal observation. Small-pox, measles, and scarlet fever produced no death in Conway or the adjoining parish of Gyffyn during the septennial period 1851-7. Scarlet fever, which had been prevailing in the neighbourhood towards the end of 1857, and early in the present year, was introduced into Conway early in April. Between its introduction and my visit in September last, this disease caused a mortality fully equal to 8 in each 1,000 inhabitants; and neither the cases nor the deaths were confined either to the most filthy and overcrowded dwellings, or to the poorer classes of the community. Some sanitary amateurs have been charged with exaggeration, and I think they cannot altogether free themselves from the charge so long as they maintain that these contagious diseases are to be classed in the same category with diseases which are the produce of local impurity.

I commenced my former communication with the following assertion: "It is very important that no false expectations of the benefits derivable from sanitary exertions should be raised in the public mind." I here repeat that assertion, and I do so because such false expectations are likely to retard sanitary progress. In a town with which I am acquainted, works of drainage and water-supply were constructed by an eminent sanitary engineer. It was supposed by the local authorities and rate-payers that the contagious epidemics so often spoken of by sanitary amateurs as preventable diseases would disappear after the completion of the sanitary improvements. When, however, the works of sewerage and drainage had been for some time in confessedly successful operation, scarlet fever broke out among the younger portion of the inhabitants. This produced much discontent, and notwithstanding that I believe the public health of the town in question has materially benefited by the operation of the sanitary works, I doubt whether the shock which the sanitary cause received from the non-fulfilment of these false expectations has been altogether overcome.

E. HEADLAM GREENHOW, M.D.

We must confess that this communication does not seem to us to advance the subject, and does not even pretend to give a proof that it would be useless for medical officers to note, as we have urged them, the localities in which fever prevails, and to make them the scene of sanitary improvements. Certainly it does not in any way alter or improve Dr. Greenhow's position. His anecdote about the introduction of measles into the Färoe Islands, like many other similar anecdotes, bears doubt on the face of it. The usual refuge of contagionists, in default of direct evidence of the introduction of disease, is to create what is called "incubative" importation, that is, disease in its unformed state. This has been often done; but it is utterly futile. All such alleged facts require to be tried by the ordinary rules of evidence, and when so tried, they fail. Dr. Greenhow must be well aware that the Färoe case, and other similar cases, admit of quite another explanation. Moreover, there are well-observed instances of both scarlet fever and small-pox being self-developed in particular spots, and no appearance even of spreading by "contagion" having ever existed.

Dr. Greenhow says that scarlet fever is as liable to attack those living in palaces as others in more humble dwellings: figures will, however, show that the average number of deaths

* See page 709, *ante*.

from scarlet fever is beyond comparison great in neighbourhoods conditioned as are Lambeth, Bermondsey, and parts of Spitalfields, when compared with better neighbourhoods. In the course of our inquiry into matters of health we have found that in neighbourhoods where the drainage is bad, where people are too closely packed together, where great poverty stops the proper supply of food, such complaints as we refer to are increased and aggravated to an extraordinary extent, and we have the opinions of eminent medical men to the same effect.

At the Fever Hospital in Islington no cases of fever (either scarlet, typhus, or typhoid) have been communicated to the surrounding neighbourhood. At this hospital, in one instance, the nurses were attacked by fever: it was, however, found, we are told, that the drainage at that time was out of order. Except on that occasion, no fever has been communicated either to the medical officers or the nurses of this establishment. One eminent authority, whose name, if we were permitted to use it, would carry conviction with it and shorten the discussion, says distinctly:—"Had Dr. Greenhow ever practically watched the causes of scarlet fever (and other children's epidemics, measles, &c.) growing up under his eyes, in poor (and other) dwellings, he could not have put forth the papers he has lately printed."

We cannot venture to occupy space in discussing "contagion." The medical profession is itself divided, wide as poles asunder, on the question. As practical men, we have to deal with the prevention of disease. And we do happen to know that the liability to children's epidemics, of all kinds, can be most materially diminished by sanitary means. The application of these, then, it is that we demand; and surely Dr. Greenhow is not the man to try to persuade parish vestries that we are wrong.

With regard to the appearance of scarlet fever in drained towns, we are not aware that any sanitary reformer ever expected that towns would be put in a good sanitary state solely by drainage and water-supply. These were never considered in any other light than as a basis for improving the dwellings of the working classes. The improvement of the houses in ventilation, lighting, free circulation of air in courts and alleys, diminution of overcrowding, &c. have yet to be embodied in Acts of Parliament, or to be carried out by private exertion. When these things have been done, and have failed, we shall have time to discuss with Dr. Greenhow the propriety of putting a quarantine on medical men and others coming from infected houses, which, as we formerly stated, is the only logical result of his doctrine, a doctrine which, we must take the liberty of repeating, will be made use of by the opponents of sanitary measures to the harassment of right-judging and earnest men, and the retardation of vitally important improvement.

AN ARCHITECT'S SKETCH-BOOK OF THE THIRTEENTH CENTURY.

CONTINUING our notice of Wilars* de Honecort's Sketch-book. Among his own inventions we find a plan of a Cistercian church, square-ended, as they always were; the apse of the church at Cambray, and another, which he says is the result of a discussion between himself and another member of the profession, Pierre de Corbie. In woodwork he presents us with a small drawing of a bridge, and a larger one of a clock-tower, most probably an erection inside some church, like that now to be found at Beauvais. That at Beauvais dates from the commencement of the fourteenth century, and has been repaired late in the fifteenth. The lower part is in stone, and takes the shape of an octagonal tower, thus allowing space for the cords and weights. Very likely there was a similar stone basement to the one under consideration. He also gives us two or three roofs, all without tie-beams: one of these, evidently intended to be boarded to the underside of rafters, presents us with an ogee cradle roof, thus anticipating the almost unique example in the house of Jacques Cœur, at Bourges. On another page we find an elevation of a stall, and the mass of perforated foliage generally employed to finish the canopies of a set of stalls at the extremities: this foliage, which he calls a *poupée*, is repeated elsewhere, and more carefully drawn. It is really a very beautiful piece of composition, and evidently constructed upon the right principle for all woodwork, viz. making the elevation very thin, and getting solidity by the depth of the perforation: the same principle is carried out to perfection in the wonderful Flamboyant stalls at Amiens.

Another very curious fact connected with the woodwork of our author is, that the group of wrestlers, so carefully rendered from the life in the album (plate 16), occurs sculptured in wood on the stall at Lausanne. This fact, connected with the drawing of the rose window of the cathedral, would almost lead us to believe that Wilars de Honecort had something to do with the design of the stalls. If he had, they certainly do give but little credit, for, according to M. Ramé, the whole execution is barbarous in the extreme.* Scattered up and down in the album we find sundry other sketches of ornament, all well drawn and some very ingenious: witness the two heads sprouting out in leaves.

In stonecutting our author is by no means very clear; indeed, his problems upon this subject, as well as upon mechanics generally, must be regarded more as hints or memoranda for his own use than as clearly-defined directions for the instruction of others. Thus, in the very first of the problems, viz. how to take the size of a column from a part only of the circumference, he gives us two figures. In the first we see a compass with an arc and three legs; but he does not tell us that the middle leg should have a double motion upon the arc; and then, in the completion of the problem in the second figure, he merely draws a circle, marking the centre and the three points in the circumference; but he says nothing as to how the centre is to be found from these three points, either considering the solution too well known to require demonstration, or viewing it as a secret of his craft. Upon the whole, after wading through the very ingenious explanations of M. Lassus upon this portion of Wilars's work, I do not see that we learn anything beyond what is already known to almost every architect and mason, to say nothing of the doubts which occasionally arise as to whether M. Lassus has really hit upon what our author meant. Thus it is doubtful whether the equilateral arch was called the "*clef de tiers point*," or the drop arch, or whether the name was common to all pointed arches whatever; and after all I really do not think it very much matters what the arch was called. All it concerns us to know is, that drop arches of various proportions are almost universally employed in the best architecture of the thirteenth century, to the exclusion of equilateral ones, and that no work will be satisfactory in execution where the artist tries to supply his want of eye and feeling by stiff geometrical rules.

If we look at the way in which Wilars renders his architecture, we find that everything is simplified: the capital consists invariably of a necking, two horns ending in rounded points, and a perfectly simple and flat abacus. Now it is by no means to be inferred from this, that having a capital to execute, he would confine his detail to the simplicity of the drawing, but quite the reverse. The drawing was merely his short-hand for a capital of any size; for he doubtless had all the additional details at his fingers' ends.

His weak points, however, are the perspective of his architecture and the anatomy of his figures; both which sciences would appear to have been neglected during the Dark Ages and had to be revived by slow and painful efforts until they obtained their perfection in the sixteenth century; but then, unfortunately, the religious arts of the Middle Ages had departed. It is yet to be seen whether the wondrous nineteenth century (for wondrous it has hitherto been with regard to sciences and human progress) will be successful during its latter half in uniting the two.

If we examine the figures of Wilars de Honecort, two things especially strike us: the first is the very large amount of space occupied by representations of men and animals; and the second, his attempts to employ geometry to the drawing of them. Various treatises have been made by far more distinguished artists than our Picard architect upon this subject; witness the books of Albert Durer, Leonardo da Vinci, and our own Flaxman. There is also a book by a Dutchman, published, I think, in the last century, which goes very deeply into the matter. Thus one of the diagrams shows how the figure of a greyhound can be changed into that of a woman; but all that is really useful can be learnt in about half an hour, and I am afraid the rest of the elaborate measurements must be placed in the same category as most architectural books, viz. of being useful to those only who can do without them.

If our friend Wilars had studied the human or animal skeleton, instead of seeking to get his outlines by means of impossible squares and triangles, he would, doubtless, have been a better artist, and *à fortiori*, a better architect.

The figures found in the album may be divided into four classes: first, those drawn from the life; secondly, those copied from the antique; thirdly, compositions for, and copies of, contemporary mediæval subjects; and, fourthly, those which are drawn to show the art of "portraiture." Among the groups from the life, we may mention that of the wrestlers already referred to, the two workmen playing at dice, and the two figures in plate 42. These latter are nude, and of course display all the faults which a man ignorant of anatomy would naturally fall into; and the patella is round, and the clavicle goes up the side of the neck. However, the figure holding the vase, in plate 21, which was probably copied from an antique, is rather better; but both in this case and in the standing figure in plate 42, finding some difficulty in drawing the hips, the artist has gone round the figure, and shown the glutei muscles, which it was perfectly impossible to see in the original position, but which of course were easier to draw. The other sketches from antique remains are those from the sepulchre of a Saracen (probably a Byzantine or Gallo-Roman tombstone), and the combats of men and animals, possibly derived from some consular dyptich: these latter are very fairly drawn, as indeed are all the draped figures throughout the book. M. Lassus, *inter alia*, supposes the Descent from the Cross, plate 25, to be a design for a painting; and the woman, plate 24, a composition in stained glass; but perhaps the finest of all the drawings are the seated figure of Our Lord, forming plate 31, and the two kneeling figures in plates 32 and 45.

It would be neither a very easy nor a profitable matter to follow our author through to his system of drawing the figure by geometry. His more usual plan is to set the body into two iscosceles triangles, which cross one another. Their apices determine the length of the legs, and the bases are placed upon half the breadth of the shoulders. A common way of making his first thoughts of a composition is to draw a triangle which forms the torso, and the legs and arms are added by means of single lines. This, if viewed as an aid to composition, is much better than the former, but still it is very unsatisfactory for the side views, and usual way of drawing the figure by lines and dots is still better. Among animals we find representations of the bear, the swan, the crawfish, the cat, the grasshopper, &c. all of which are very fairly drawn: indeed, at one time it would appear that Wilars had had the run of a menagerie, for we have a porcupine and two representations of the lion, which he assures us were drawn "*al vif*." He applies his geometrical theory to all animals, as well as human figures,—if, indeed, it is really a theory, and not a way of drawing a complex form by dividing it up into several simple geometrical ones.

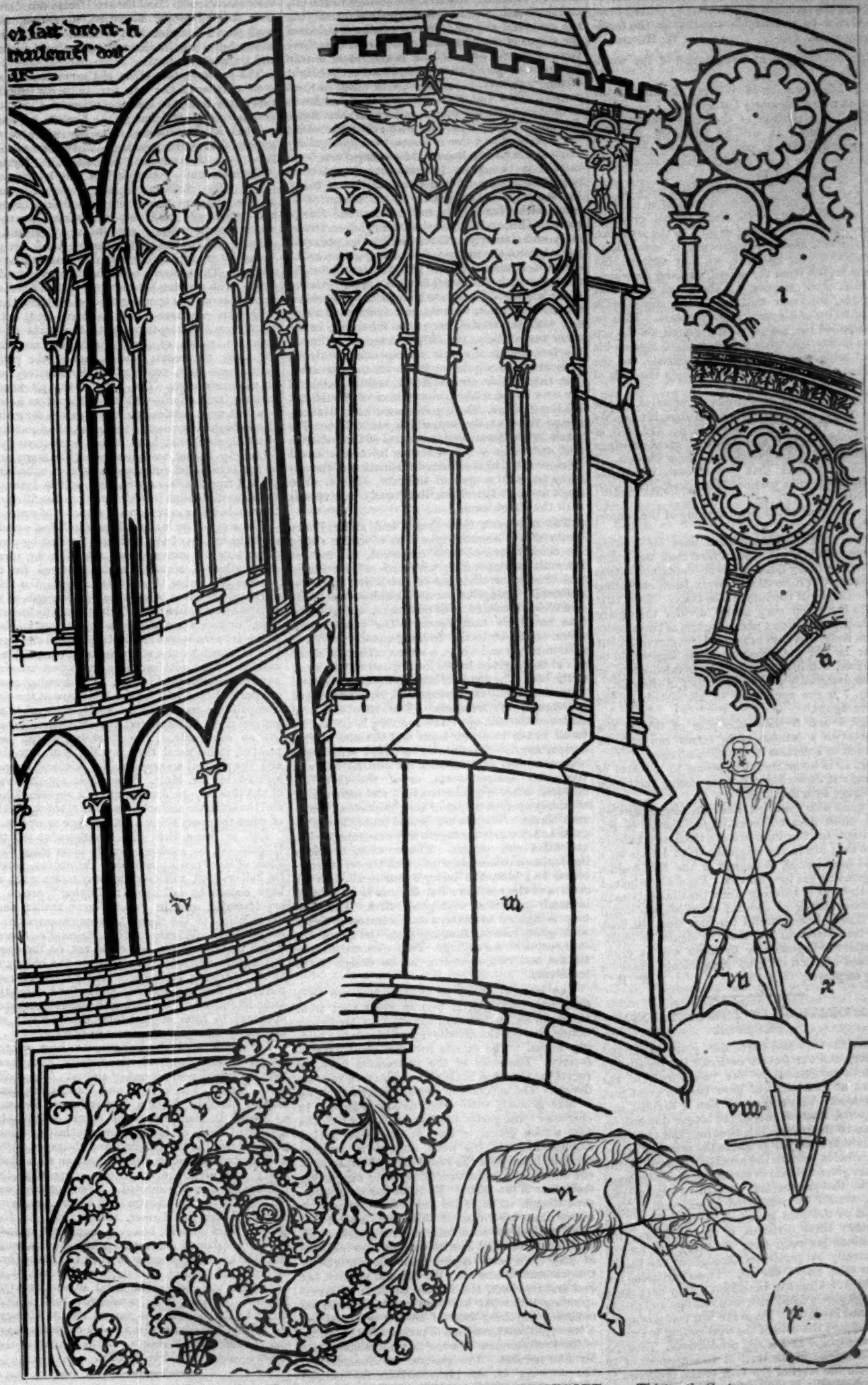
The last series of subjects to which I shall allude are the mechanical devices, known in the thirteenth century, which were certainly better and more advanced than we generally give it credit for. Besides telling us the way by means of which the great leaden angels at the ends of the cathedrals and chapels were made to revolve in the twenty-four hours, and how a lectern may be made so that the eagle shall turn his head when the Gospel is read, he shows us how to construct a saw-mill, a machine to raise stones, and the *trébuchet* (the mediæval cannon), besides giving us his idea of perpetual motion.

As this notice has already run to a greater length than I intended, I must dismiss this part of the subject, which I do with the less regret, as Mr. Parker has promised us an English version of the work, with annotations by Professor Willis, than whom he could not possibly have made a more fitting choice. Under his skilful investigations the ill-drawn perspectives and the somewhat misty interpretations will become clear and straightforward, and we shall then have what has been long a desideratum, viz. a good account of the state of the mechanical sciences in the thirteenth century.

I would only suggest whether drawing Wilars's

* See page 758, *ante*. I much regret that I have misspelt the name of our author in the former part of this paper. He calls himself Wilars de Honecort. This M. Lassus has changed into Villard de Honnecourt. The orthography of the village has doubtless changed since the thirteenth century, but at the same time we ought to give so accomplished a man as our author the credit of spelling his own name correctly.

* See "Annales Archéologiques," vol. 16, page 50, where this question is discussed. There are also illustrations of the stalls.



FROM THE SKETCH-BOOK OF WILARS DE HONECORT.—*Thirteenth Century.*

machines in good perspective, with the omitted parts in the original represented by dotted lines, would not be a desirable addition to the forthcoming work. W. Burges.

The following is an explanation of the woodblock:—

Fig. 1 is a portion of Wilars's drawing of the western rose of Chartres Cathedral.

Fig. 2 is a portion of the same window as it actually exists. It will be perceived that the principal differences arise from the desire of Wilars to make more perforations, so as to get a larger amount of light.

Fig. 3 is part of the perspective, showing the outside of one of the eastern chapels at Rheims. The sloping roofs, with their leaden crockets, deserve particular notice, as well as the creteaux, both features having disappeared, if indeed they ever existed; for although we may suppose that Wilars copied from the actual working drawings, yet from other sources, *e.g.* the wheel window at Chartres, we know that he always copied with the addition of his own improvements. Thus he has supplied the places of the angels, on the top of the buttresses, with naked winged figures, his object being probably to get the altitude, and the position of the limbs, and not simply the folds of the drapery.

Fig. 4 is part of the inside perspective of the same chapel, and, considering all things, is tolerably correct. Violet le Duc, in vol. ii. pp. 472, 473, of his "Dictionnaire d'Architecture," gives drawings of the exterior and interior of these chapels. I should also remark that in both cases Wilars has drawn the circular portions of his perspective with the compass.

Fig. 5 is part of the large drawing of the *poupée*, or stall-end.

Fig. 6 shows the geometrical lines for drawing a sheep. It is a well-known fact that the bodies and legs of many quadrupeds are contained within a square; the difference between them consisting in the height of the line of the belly. Now, that line in the sheep very nearly divides the square into half, thus giving a parallellogram of two squares to the body. Wilars has drawn this correctly, but either he did not know that the legs would be contained within another similar parallellogram, or he has designedly given us but half of the rule.

Fig. 7 is the application of his system to the human figure.

Figs. 8 and 9 show the plan of taking the diameter of a column when access can only be obtained to a portion of the circumference.

Fig. 10 is taken from the design to a wheel of fortune: it shows his way of expressing the action of a figure by a few lines.

I must also mention that the accompanying wood block does not contain *fac similes* of the drawings, *i.e.* the lines are not thickened exactly where they are in the original. Had I done so, I should have lost all the spirit of the MS. besides exaggerating the inequalities. Upon the whole, I have thought it better to draw the illustrations in the same manner as the old artist himself would have done. Thus careful tracings from the book were transferred to the wood by means of chalk, and afterwards gone over by hand with a crow-quill and common ink; no instruments whatever being employed. W. B.

DECORATIONS OF THE BRITANNIA THEATRE.

From the view and particulars given in our last number, and our former notices,* the peculiarity of the arrangement of the "auditory" of the theatre at Hoxton, will have been in great part understood. The ellipse on plan is divided into four parts, whereof one, of the longer dimensions, is given to the proscenium opening, and the opposite division of similar extent to the principal boxes and galleries, whilst the smaller divisions at the ends are given to boxes in several tiers. The splayed sides in the proscenium, containing the private boxes, should be considered as external to that portion of the plan governed by the ellipse. In the other three divisions, or the auditory, the separations (as radii from the foci), are formed structurally by partitions throughout the height of the tiers above the pit. These partitions are prominent features in the effect. They have large openings partly filled with iron railings, and panels decorated in colour. From the four points of apparent support the cove of the oval ceiling is carried on low elliptical arches and pendentives. Then the main divisions in the vertical measurement of 49 feet from the level of the floor of the orchestra to the highest part in the centre of the ceiling would be five in number, whereof one belongs to the pit, and the fourth takes in the elliptical arches carrying the cove and ceiling. In the smaller divisions of the ellipse of the *plan* there are in each case three tiers of boxes, whereof one is comprised within the space of the elliptical arch, added to the height of the proscenium entablature, with which its front ranges. That last tier corresponds in position as to height with the upper gallery of the major division of the ellipse on plan; though whilst one is fronted as a tier of boxes, the upper gallery extends the raking line of the lower gallery, so as to take in the space, 13 feet, over the saloon or refreshment-room of the principal tier of boxes. The lower gallery ranges, as to the design of its front, with what may be called the second tier of boxes. This, and the principal tier of boxes, 10 feet each, and similarly in three divisions on plan (the floors behind the uniform front being at somewhat different levels), and the pit (12 feet in height from the orchestra floor) form our other divisions of the height. The private boxes in the proscenium range with the pit, with the principal tier of boxes, and with the second tier at the sides, each to the other respectively, the elliptical-arched ceiling of the proscenium of course corresponding with the arch over the slip-boxes which are at the sides. The rise of this arch is 6 feet, and the height of the cove above, with its rim or base of mouldings, is 5 feet 3 inches. The box-fronts are 3 feet 6 inches, except those at the top, which are 4 feet. The whole height from our datum level of the orchestra floor (which is 4 feet 6 inches below the street level, to allow of the desired inclination of the pit-floor) is, to the apex of the roof, 72 feet. The stage-floor, at the front, thus nearly corresponds with the street level.

The two main tiers (boxes and gallery) have fronts of the inverted ogee form of section: they are thickly covered with ornament, and have at intervals corresponding with each of the columns and trusses, or divisions of the boxes, figures of Britannia, with gilt spear and shield, seated partly in a niche, bordered with ornament, and coloured blue as to its background. The predominant effect of colour in the fronts generally is that of salmon-colour and white, a somewhat deeper shade of red being given to the lower part, on the swell of the bow. The fronts of the slip-boxes are vertical in section: they are ornamented, but are without the figures of Britannia. The cove and oval centre of the ceiling of the auditory is divided by broad bands into four outer and the one central compartment. The centre is filled with good ornament, left as open-work for ventilation; and the outer compartments, or of the cove, are coloured blue in graduated tint, and have a kind of widely-spersed diaper of rose, thistle, and shamrock leaves. The ribs are formed into coffers of regular and elongated octagons and hexagons, varied, and filled with rosettes. The colouring is chiefly light salmon-colour and white, with the darker rose-colour and blue, the latter colour applied to the centres of the rosettes: but crimson is introduced in small quantities with good effect. The auditory is lighted by sixteen small clusters of lights with glass lustres, hanging from the rib of the oval centre of the ceiling. They were supplied by Defries and Son, according to the design of the architects.

The general result of the features we have described, certainly, is now in great part what we hoped for, rather than expected, in our former notice, viewing the artistic capabilities of the leading forms. The details are not equally satisfactory. The sides of the proscenium have, we regret to see, been little altered since we saw the design. The mixture of Gothic paterns (gilt, on a blue ground) with other details different in character: the partly twisted shafts by which the first notion given, is that of the gilder having stopped short in his work, and their peculiar capitals, have quite the result that we expected—one of mingled caricature of style, or suggesting feebleness of the effort. Work of less originality, even though it be called imitation "slavish," is better than invention of this kind: and it is a relief to look at some intermediate panels which there are here filled in with good scroll-work, such as may have been copied from the antique or Cinque-cento ornament. We demand novelty, but first and foremost, the beauty equal to or corresponding with what has been attained in the old models. Anything short of that is not good art. A heavy, Elizabethan kind of pendant in the ceiling of the proscenium is in some degree a mistake, and for like reasons. The general enrichments and the covering to the plain surfaces (as panels) of the ceiling, in lieu of plasterer's work, have been executed in *carton-pierre* and *papier mâché*, by Messrs. White and Parlby, whom we have before mentioned. Had the architects been allowed time to give proper attention to design, their work would doubtless in the details have been as successful as it is in the more prominent features and the general effect.

The panels of the ceiling of the proscenium, and some of those of the two partitions dividing the side boxes from the centre portion of the house, are tastefully enriched with borders of leaves painted by Honnaman, who has executed the general decorative painting. The main pendentives bear the names "Shakspear," "Byron," "Sheridan, and "Garrick," in gilt letters, with dates. The divisions of the boxes and much of the ordinary woodwork are stained brown, and varnished; and the brickwork internally, which would show, not being plastered, is painted a dull red, with narrow black stripes. Vousseirs are marked on a similar principle to the arches. The general effect as a background is good. The division between the pit and stalls is wood-framed with open-work panels in iron. Generally the appearance of comfort, and actual comfort, with exceptions as to the parts of the plan we spoke of, and which we see have led since to trouble, and a case at the police-court, have been provided in the auditory, and at moderate cost. The floor of the pit has an unusual inclination—we believe as much as 1 in 12—which must conduce to its advantage for seeing. The refreshment-room to the boxes, the dimensions of which we should have stated approximately as 50 feet by 13 feet, we may say has, like many parts of the tavern and entrances, a floor of rolled-iron joists 2 feet 6 inches apart, and hollow bricks of the same dimension in their length as the filling-in, the whole being covered with 6 inches of concrete.

The stage-floor inclines 1 inch in 5 feet; and it contains twelve of the "slides" (formed by pieces of battens on canvass, and moveable by means of windlasses), required to be removed for the passage of a scene through the stage. For these purposes the space below the stage descends at the back to a depth of 18 feet. The height of the "mezzanine," or floor where the traps are worked, is 6 feet. There are nine spaces left for traps, small and large. The supports to the stage are of the usual kind; and the "flys," with ordinary queen-post trussing, have been mentioned before. The dressing-rooms are partly below, and for the ladies are at the side. The painting-room is to the north, external to the general plan. Also external, are refreshment-rooms, one on each side. The "act-drop" has been painted, in his usual style, by Mr. Wm. Beverley, and the general scenery by Mr. Richard Cooper, assisted by Mr. Muir. The whole appointments of the theatre—as dresses, are of a superior kind; and the actresses and actors, several of them, worthy of what they may think a better stage or audience.

Let us hope that the management of the theatre will be conducted with ideas other than those of *mere* profit; and that the engine, potent for evil or good, will hold its sway under what we have chosen to call the "mollifying" action of art-dramatic, and in improvement rather than degradation of the classes to whose amusement it administers. Whether *The Brigand's Secret*, which we tried to see, but could not, on the opening night,—and which according to the bill, exhibited "exciting combats," "the pursuit of vengeance," "love and suicide," and so forth,—has the same likelihood of benefiting the audience that it appeared to have of enriching the treasury, we can hardly trust ourselves now to speak.

Let us add that the building has been erected for Mr. Samuel Lane, who is manager, and whose wife is evidently an actress of ability. The architects, Messrs. Finch Hill, and Paraire we have already named. Messrs. Hollands and Hannen succeeded in completing the work within the appointed time, of barely four months (including taking down the old building, and clearance of the site), notwithstanding the difficulties with their men; and certainly the work, especially the brickwork, is well executed. Their contract was for 12,120*l.* for the theatre and tavern, made up of 9,373*l.* for the former, and 2,747*l.* for the latter. That amount, however, would not include the more elaborate decorative painting: this, with the fittings and appliances to open the house (but exclusive of scenery and stage-machinery), it is estimated will bring the total expenditure to 15,000*l.* Of this, it is considered that 4,000*l.* would be the cost of the tavern and its fittings, the private residence, the theatre-entrance-ways, and the refreshment-courts. Thus the cost of the theatre proper, would be 11,000*l.*

* See pp. 644, 654, and 762, *ante*.

The Thames Tunnel.—In the week ending November 16, 19,492 passengers passed through, and paid 81*l.* 4s. 4d. in tolls.

ON THE CONSTRUCTION OF BUILDINGS IN REFERENCE TO SOUND.*

It is proverbially customary to commence an address before any audience with some preface soliciting an indulgent hearing. Seldom is there so good a reason for such solicitations as my topic affords.

It is confessedly one of immense importance, and yet shrouded in great obscurity; and the natural philosophers to whom we have a right to look for information and guidance, while investigating the vibrations of violin-strings and plates of glass with the utmost nicety, have left all but untouched the investigation of the laws that influence the transmission of sound in large buildings. Few experiments have been made—still fewer principles are laid down, and it has been a matter of considerable difficulty to ascertain even what authors have touched at all on the subject.

This obscurity, however, on an important subject like this, only increases the desirableness of our both knowing whatever is known, or supposed to be known, and our endeavouring to add to the stock of facts, and become for ourselves experimenters, observers, and discoverers,—more especially in the present day; for now so large a proportion of the buildings which engage the attention of an architect are places of worship, or places of public assembly or public amusement, in which a number of persons are intended to hear either speaking or music or both, that it must frequently occur to every one of us to have to ask himself,—"If this room is arranged in such and such a manner, will it be good for sound?" and, more,—there are few of us who may not expect, sooner or later, to be consulted about some church or public room (happy if it is not one of our own design), planned with the intention that an audience should be able to hear in it with ease, but so built actually that some are annoyed by echoes, others perplexed by reverberation, and others unable to hear at all; showing that either no thought had been bestowed on the acoustic properties of the room, or that the calculations of the architect had somehow failed to secure their aim.

The feeling of the importance of our acquaintance with the laws of sound it was, and not the consciousness that I had any new views or even new observations and experiments to advance, which moved me to venture upon this subject, convinced that it cannot fail to be of advantage to turn attention to the views already held, and facts already ascertained, as far as they have become known to me, and full of hope that the discussion of the subject may elicit something of value, and may induce some of us to embark on its further investigation.

I lay especial stress upon the desirableness of obtaining fresh information, since our stock of published facts is miserably small, while many gentlemen known in our profession, and who have never in any way published the results of their experience, have practically proved, either by a signal triumph in some one conspicuous instance, or by a uniform success in many, that they are not working entirely in the dark. And I believe that the architects of such buildings as the Free-Trade Hall, in Manchester, or the Music-Hall, in the Surrey Gardens, could teach us something not generally known in our profession, if they would themselves lay before us the principles that guided them in the design of these buildings, and show us how these principles have been applied in their various parts.

One word, however, ere we begin to discuss theories, upon the amount of dependence to be placed upon them. Do not misunderstand me, when I speak of the desirableness of rules and principles: they do not now, and they never will supersede the necessity for intelligence, judgment, and tact—almost instinct, in their application.

Practical architectural acoustics will always be in a position very much analagous to the practice of medicine. The physician, after he has gained all the knowledge of disease and of medicines which books can furnish, is still quite unfit for actual practice, unless he have the skill and intelligence to know how to vary his mode of treatment, and to apply his laws and principles to the different circumstances of each case, and the different constitution of each patient; and he must, moreover, possess a large stock of isolated facts relative to cases which do not seem reducible to any known general laws, nay, which even run counter to them. It is so with sound. The most successful architects will tell you that their judgment of the probable acoustic effect of this or that arrangement is as much or more the result of a sort of instinct—a kind of internal perception of what will do, or what will not do, as it is the application of a code of laws, or a set of rules—and your knowledge (to be of much value in this department) must, I believe, be associated with this sort of tact, not to say instinct, which is not to be gained at once or easily, nor without making the subject one of constant observation and thought when visiting existing buildings, or when preparing or examining designs for new ones.

The varieties of rooms where sound has to be studied are considerable. All large rooms where public meetings or concerts may at times be held, whether in private houses, hotels, or the offices of public companies, lecture theatres, town-halls, courts of justice, concert-rooms, club-rooms, theatres, churches, chapels, crystal palaces, mechanics' institutes, school-rooms, class-rooms; and in museums, libraries, reading-rooms, and hospital wards, when *quiet* ought to be maintained, an attention to the means of *preventing* the propagation and re-enforcement of sound is of importance. Some of these, particularly theatres, have been the subject of distinct treatises, and one of the best short tracts on the subject, that of Rhode, is devoted mainly to the arrangement of theatres. A good treatise on ecclesiastical acoustics would be, in the present day, of great value.

It may be more fitting now than further on to enumerate the principal sources of information which can be consulted on the subject of sound. Much of what I have been able to glean has, however, been derived from hints kindly furnished by two or three of those to whom the subject is most practically familiar, and to whom I owe acknowledgments for their courtesy.

On sound generally, there are several good treatises. A small manual, forming part of Chambers's Educational Series, contains a compendious account of acoustics. Several of the encyclopædias contain more complete articles. That in the "Penny Encyclopædia is good. There is an interesting article, partly by Professor Leslie, in the "Encyclopædia Britannica;" and a masterly and comprehensive one by Herschel, in the "Encyclopædia Metropolitana."

In French, the "Traité d'Acoustique," by Chladni; a treatise by Mons. Biot, in his "Précis Elémentaire de Physique;" and notably a series of papers by Mons. Savart, published in various volumes of the "Annales de Chimie," are the most conspicuous; but they all strangely ignore the most practical of all the possible applications of acoustic science, namely, the one now under consideration.

Chladni, however, refers briefly to the construction of buildings. On this special subject I can mention two small works, one in French, "Acoustique et Optique des Salles de Réunions Publiques. Par Théodore Lachez;" and one in German, "Theorie der Verbreitung des Schalles für Bankünstler" (Theory of the Propagation of Sound, for Architects). By J. G. Rhode. Berlin, 1800. In English nothing of much value has come under my notice, except "A Treatise on Theatres, including some Experiments on Sound," by Saunders; chapter in Dr. Reid's book on ventilation; and some manuscript notes kindly lent me of a paper read eleven years ago before the Institute of British Architects, by Mr. Scott Russell. This paper, unfortunately, was not printed, and is not among the manuscripts of the Institute, a loss the more to be regretted that I believe it to have contained some of the most valuable hints and observations yet brought before the profession.

Let us now, as a preliminary inquiry, revert to the nature of sound, and the mode of its propagation; and in doing so, we must leave entirely unnoticed the many interesting and beautiful observations, with the abstruse theories based upon them, which are to be found in the writings of those natural philosophers who have investigated the phenomena and theory of musical vibrations.

Sound may be said always to be the result of either one shock, when it is quite instantaneous, as the report of a gun, or of vibrations, conducted through any medium capable of transmitting them; or, in other words, through any medium which, being elastic, has the power itself of vibrating, to the ear of the hearer. If the vibrations recur at regular intervals of time, the result is a *sound*, or note; if they are irregular, we hear a *noise*.

The gravest sound perceptible to the human ear is, according to Euler, that made by a body vibrating thirty times in a second. The sharpest we can detect, he states to be one due to 7,500 vibrations in a second.

It is, however, nearly certain that sounds sharper than this exist in nature, and are audible to insects, when we cannot detect them; and it is even possible that some animals can detect graver sounds than we can. Different ears vary in their compass, and some persons can hear a sound too sharp to be detected by others, whose hearing is less delicate; while too, one hearer will be distinctly conscious of an audible though extremely grave sound, where others can only perceive a confused whirring.

Sound can be, as we have observed, conveyed through any body, capable of transmitting vibrations, or in other words, through any body, possessed of elasticity, as through the earth, or through a log of wood. It is more frequently conveyed through the air than through any other medium, and it is almost entirely with its propagation through the atmosphere that we shall have to do in this paper.

The rate at which sound traverses the atmosphere is uniform for all descriptions of sound whatsoever, though it varies slightly with the density and temperature of the air at the time. It is ordinarily 1,090 feet per second, with the thermometer at 32 degrees. At 62 degrees, the standard temperature of the British metrical system, it is 1,124¼ feet in a second.

If you drop a stone into a pool of water, and watch the gradually extending circles of waves spreading from the point where the stone falls, you will have a familiar and a very correct illustration of the mode in which the waves of sound spread themselves from a sonorous body, remembering always that the waves of sound are not mere rings on one plane, like those on the surface of a pool, but that if they have free scope, and no disturbance, they spread in every direction upwards and downwards, as well as sideways, resembling something the coats of an onion.

Light, as well as sound, spreads by means of waves radiating through space from an exciting centre; but the analogy between waves of *light* and waves of sound is not quite so accurate as between waves of *water* and of sound; for light traverses a perfectly elastic medium, while sound in air, or waves on water, only traverse an imperfectly elastic one. We shall have occasion to bear in mind this difference, as the neglect of it has led to misapprehension in a very important point, namely, the reflection of sound, which is not, as has been sometimes erroneously stated, entirely similar to that of light.

The law regulating the reflection of light is that the angle of reflection is equal to the angle of incidence; that is to say, that if you stand exactly opposite to a mirror, with a lantern that has a bull's-eye to it, and throw a ray of light upon the mirror, it will be reflected back to you again; but if you move to one side and then throw the light obliquely upon the mirror, the image will not now be reflected back to *you*, but obliquely off to the other side; and the more you get round to one side with your light the farther round to the other side will the reflected image be thrown.

Now let us see if it is so with waves in water. If the pool we have referred to has a clearly-defined straight bank (say it is the lock of a canal), you will find that the wave which first touches this bank is reflected back again towards the spot where the stone was dropped; and that as the outer wave reaches portions of the bank farther and farther on, it for a time gives rise to reflex waves, obeying the law just referred to, of the angle of incidence being equalled by that of reflection; but after a time, should the wave be distinct enough, you will notice that the portion of it which falls very far away upon the bank, and, consequently, very obliquely, ceases to be reflected back into the pool again, but travels along the bank till it has quite lost all its strength.

It is so with sound. When sound impinges upon a reflecting surface, it is reflected back in the direction prescribed by the law above named—so long as it falls at right-angles, or at an angle larger than from 45 to 30 degrees, *but no longer*. So soon as it comes upon the wall or reflecting surface, at an angle more acute than 30 degrees, instead of being thrown back into the room, it is conducted along the wall or reflector until it has quite spent all its force, which it will not do for some considerable distance. This observation is due to Mr. Scott Russell.

Sound, like light, diminishes in power constantly and rapidly as it travels farther from the point at which it is first roused; the sounds which travel farthest are not necessarily the loudest, but the most *intense*. The distance to which the human voice can be heard seems to vary very much with varying circumstances, and some extraordinary instances of hearing at great distance are on record, but the power of ordinary voices in the open air seems limited to less than 100 feet. It was made the subject of investigation by

* Read by Mr. T. R. Smith at the Architectural Association, on Friday, Nov. 12.

Saunders, who, in his book on theatres, describes his experiments as follows:—

"In all of them a calm day was chosen for the purpose, and an open plain; the positions of speaker and hearer were alternately changed, and the notes made by each compared. A book was made use of for this purpose, as the voice was less liable to be altered by reading.

Exp. 1. Having traced a circle of 100 feet in diameter, I placed the speaker in the centre; the distance, therefore, was the radius of 50 feet every way. The hearer, moving on the circumference of this circle, heard most distinctly when in front of the speaker, not much less so at each side, but scarce at all behind.

Exp. 2. In the same circle I placed the speaker at 25 feet from the centre, which was three-quarters of the diameter, or 75 feet to the front, and 25 feet behind. He was heard best at the sides, and indifferently in front and behind.

Exp. 3. On repeating these experiments, and changing the situation of the speaker, I found the voice reached the circumference most equally when he was placed 17 feet from the centre. I then, without regarding the circle, traced the *extreme* distance at which the voice could be heard every way. The extent from speaker to hearer will be 92 feet in front, 75 feet on each side, and 31 feet behind. (*This, observe, is the extreme limit of hearing, not that of comfortable hearing.*)"

He goes on to observe—"The difference of the form made by the voice, and that made by fixed sound (which is circular), is evidently occasioned by the voice being pushed forward from the mouth, and this difference will always be in proportion to the exertion of the speaker, and subject to very little variation.

He goes on to narrate other experiments going to prove that sound descends rather more readily than it ascends; and others to show how readily any impediment coming between the speaker and hearer will destroy sound, especially if the impediment be close to the auditor.

The subsequent observations are of inferior interest, and some of the conclusions based on them, more particularly those relative to echo, would seem to be incorrect. We have, however, one pretty-distinctly established fact proven by Mr. Saunders's experiments, as to the limit to which we may with safety depend upon purely radiated sound. Inside a curve similar to the curve he obtained, only giving the limit of perfectly distinct hearing, we can draw a parallelogram with the speaker at one end of it, which will be about 70 feet long, and might be nearly as wide as it is long. If we have a square room to build, these then may be taken as the extreme limits within which we may expect direct radiation, alike undisturbed and unassisted, to convey sound distinctly to the auditors. If this parallelogram was not quite so deep from back to front, it might be very much extended sideways,—an arrangement little followed in this country, but very common in churches in Scotland, where the minister's pulpit is frequently placed in the centre of the longer side of the church.

It appears from this, that if we wish to inclose a space not exceeding 70 feet in length, by a somewhat smaller breadth, we should be quite safe in presuming that the natural radiation of the human voice would reach all the audience with no assistance, provided always we were able to insure that no echo from any part of the walls should interrupt. Should our building be much larger than this size, it will become desirable to assist, if practicable, the voice of the speaker. We may, then, lay it down as one rule for our guidance, than when the room is smaller than about 70 feet by 50, the principal duty of the architect will be to avoid all disturbances, and leave the sound to act for itself by direct radiation. In buildings of larger size he must equally seek to avoid disturbance, but he will need to endeavour artificially to assist the sound as well. Attention to this, which I think is a well-founded difference, will facilitate the work as regards all small or moderate-sized rooms, where the task is merely to *keep* harm away; and this difference also seems to indicate a division of the subject into two heads,—first, the construction of rooms of a size within the limits of distinct direct radiation; secondly, that of rooms beyond those limits.

These two general divisions are recognised particularly in the little work by Rhode. In the first, the labour of the architect is confined to preventing impediments to free radiation, and preventing disturbances from echo. In the second (that of rooms where the sound has to be assisted), the same care has to be taken to prevent disturbances; but dispositions for preserving or reinforcing sound, must be added.

In the first division, that which relates to the prevention of disturbances, we have three causes of interference to obviate—first, echo; secondly, auditors coming before one another; thirdly, extreme resonnance.

1. I believe the greatest obstacle to hearing well in any room of moderate dimensions, by which term we will understand one not more than 70 feet by 50 feet or 60 feet, to be *echo*. This is a direct reflection of the sound back from some hard substance against which it strikes, and takes place partly from the side walls, the floor, and the ceiling, but most notably from the wall facing the speaker. The sound of the voice is thrown so directly against that wall, that all or nearly all the sound which arrives there will, if the wall be flat, be thrown back among the audience; and, as the distance from the speaker to the wall, and back to an auditor in the middle of the room, is much greater than from the speaker direct to such auditor, it follows that the echo, having farther to travel, will be heard some sensible time later than the original sound, and in this way will produce confusion. In reference to the echo from an end wall, Herschel, in the "Encyclopædia Metropolitana," observes, as follows:—

"When ten notes succeed each other in a second, as is often the case in modern music, the longitudinal echo of a room 55 feet long, will precisely throw the second reverberation of each note on the principal sound of the following one, wherever the auditor be placed, which (so far as it is heard) will produce only discord."

An example of this description of interference exists in Exeter Hall—a building unfortunate enough to have been a good illustration of several descriptions of acoustic defect.

In the centre of the hall, a distinct echo exists from the straight, broad front of the gallery facing the orchestra; and a person sitting there can distinctly distinguish the echo of every conspicuous note in a piece of music reaching him from behind, the very instant after the note itself has reached him from before.

Where the front of a gallery is not, however, such as to occasion an echo, I believe its existence at that end of a room which faces the speaker or musicians is often acoustically advantageous, if it be not too deep. The front of it should either be entirely open, as at St. Martin's Hall, or made of a curved contour, as at the Free-Trade Hall, in Manchester, or inclined backward.

If it be near the floor, it will diminish the echo thrown forward by the wall beneath itself, and if none is occasioned by its own front, a gallery will pretty effectually destroy the disturbing echo from the end wall, since the sound thrown back by the wall *above* it will not cause much disturbance, as it will also be thrown upward to the ceiling, and there lost.

The echo from side-walls and roof in a room of moderate size is not usually productive of interference, still less so is that from the wall behind the speaker. It reaches the auditor so nearly at the same moment as the original sound, that it more usually acts as a reinforcement than anything else. Where, however, rooms of any size (even down to small apartments) are very lofty in proportion to their width, and have flat ceilings, an echo is almost always disagreeably perceptible.

The precautions which it seems necessary to take, then, with regard to echo in rooms of these dimensions, are ceilings rather low if flat, or if lofty, curved—coved or panelled,—end wall screened by a gallery, or broken up by windows (glass is a bad reflector of sound), recesses, or arcades; or else curved or plain doors, covered with cloth, or curtains hung up.

Where rooms exceed this size, other precautions to prevent the absorption, or loss of sound, are desirable, but none of those against echo are to be neglected. Where echo has been found annoying, it has frequently been diminished by covering the floor with some soft carpet, or by hanging curtains in front of some of the walls, or even from the ceiling. The new British Museum Reading-room is an instance of a precaution of this description, employed to diminish as much as possible the disturbance caused by sounds: not only is the floor covered with a soft substance, but the reading-tables, desks, &c. are all covered with leather, which serves the double purpose of causing little noise, and helping to deaden whatever is raised. I should think where an obstinate echo is found to exist in a room, that leather might be successfully employed as a lining to the walls, or even ceiling. Felt, when that was admissible, would, in all probability, answer well.

Having referred to a gallery as sometimes affording a successful obstacle to echo, I ought not, perhaps, to pass on without observing that it very frequently also affords an obstacle to direct radiation of sound; and deep galleries render many churches difficult to fill with the voice, or, which is much the same thing, difficult to hear in, for I believe it holds good that every room which contains seats whose occupants cannot hear, is difficult to fill with the voice; and *vice versâ*, those rooms difficult to speak in, are so because they contain spaces (whether devoted to the auditory or not) to which the voice does not penetrate.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The second ordinary general meeting of the present session was held on Monday evening last, at 16, Grosvenor-street; Mr. Hussey, V.P., in the chair. Amongst the donations announced were three volumes (for 1854, 1855, and 1856) of the Revue Générale de l'Architecture et des Travaux Publics, by M. César Daly; from Mr. C. H. Smith, honorary member, a collection of outline working drawings, by the late James Wyatt, R.A.; an engraving of the north elevation of the tower and spire of Bow Church, Cheapside, from Mr. John T. Christopher; and a study, in plaster, by Mr. E. Richardson, of a tomb executed by him, and erected by the Marchioness of Ormonde, to the memory of the late marquess, in the south transept of St. Canice Cathedral, Kilkenny.

Professor Donaldson, in referring to the elaborate work of M. César Daly, recommended the volumes to the attention of the members, as they contained much that was curious and interesting. They contained some fine illustrations of ancient mosaic, and also some polychromatic drawings, which proved the advance making in France with respect to publications of that description. He also wished to call attention to the admirable and highly-finished illustration of the tower of Bow Church, Cheapside, the original drawing of which had carried off the prize at the Royal Academy. In the production of this drawing Mr. Christopher had devoted much time and considerable expense, having erected a scaffolding to the spire, in order to get the dimensions accurately. The church was one of the best works of Sir Christopher Wren, that distinguished architect having laboured to make it a striking object among the congregation of spires which surrounded it. It was impossible not to be struck with its graceful proportions, or not to admire the skill with which the architect had realized his design. The drawing of Mr. Christopher showed the sections and the thickness of the walls, and was in all respects an admirable work, which could not be adequately described except as a credit to the English school. With regard to the drawings presented by Mr. C. H. Smith, they contained the reflex of a thinking man, who held a high position in the profession to which he belonged. He begged, in conclusion, to propose a vote of thanks to the several donors of the various gifts. Carried unanimously.

Mr. Nelson said the Institute had forwarded a copy of their "Transactions" to the Institute of Architects at Victoria, and that the gift had been acknowledged in a letter, in which the secretary of the Institute expressed the obligations of the body which he represented, and promised to reciprocate the compliment whenever the Institute was in a sufficiently advanced state to publish its transactions.

Mr. Penrose said he wished to make one or two observations with reference to the debate which had taken place on the last evening of meeting, respecting the discoveries at Halicarnassus. He found, on referring to the report of what had taken place on that occasion, that Mr. Ashpitel had stated that no architect had been attached to the exploring expedition. He (Mr. Penrose) begged, however, to state that an architect (Mr. Pullen) was attached to it, mainly, he believed, at the instance of the Dilettanti Society, but at a later period, perhaps, than that to which Mr. Ashpitel had referred. Mr. Pullen remained a year with Mr. Newton, assisting him in his researches; but the result of his investigations had not yet been published. He had been very successful in his discoveries, and had found a magnificent lion, 10 feet long, which would shortly be conveyed to this country. It had also been said, at the last meeting, that no remains of colour had been detected in the marbles deposited in the British Museum; but Mr. Pullen had reported that he had scraped blue and red from the background of the small friezes and other portions in sufficient quantities for purposes of analysis.

* To be continued.

The Chairman said he could certainly discover no trace of colour.

Mr. Penrose said he also had minutely examined for traces of colour, but had not been successful in finding them.

Mr. Ashpitel remarked, that his observations had reference to the marbles which had arrived in this country, and that he was justified in saying that no architect had gone out with the expedition, which was under the charge, not, certainly, of a captain of Irish dragoons, but a captain of engineers. He had something more to say upon this subject, but that he could not think of trenching upon the time to be devoted to the discussion of the interesting paper about to be read. All he should therefore add was the expression of his hope, that Mr. Penrose would give him credit for believing that he had grounds for the statement he had made on the last evening of meeting.

Mr. Digby Wyatt (honorary secretary) observed, that when the second cargo of marbles arrived, Professor Cockerell had kindly promised to bring the subject again under the notice of the Institute.

Professor Donaldson said that the lion referred to by Mr. Penrose had nothing to do with the monument of King Mausolus, and that it had not been found at Halicarnassus.

Mr. Penrose said that such was the fact. He did not mean to infer that it was one of the lions supposed to have surmounted the tomb of Mausolus.

Mr. H. B. Garling (Fellow) then proceeded to read a paper, entitled "Some Remarks on the Contents of the Album of Villard de Honnecourt, on the Occasion of its Presentation to the Library."

Our readers are already acquainted with the work, and in our present number will be found further particulars, together with engraved illustrations.

At the conclusion of Mr. Garling's paper,

Mr. Burges, being called on, remarked that he had very little to add to that which he had already communicated to the *Builder*. He purchased M. Lassus's work at Paris, and had carefully compared it with the manuscript. The conclusion to which he arrived was, that Villard de Honnecourt had made his drawings with something like a lead pencil—propably a lead point; that he had drawn in two circles, and had subsequently gone over the whole with a crow-quill. The fluid which he used with the quill was most probably an indelible brown ink, as in some cases the lines nearly approached to black, while in others they were a light yellow. With reference to the figures depicted by geometrical lines, he fancied that Villard de Honnecourt merely used the lines as a medium for copying, by which means he was able to dispense with a knowledge of anatomy. But for all that, he drew his figures better than they were usually drawn by architects in the present day. By the present system, figure drawing appeared to be completely put on one side. A man was put into an office, and told to pick up all he could, and, instead of getting one work on which he could display all the resources of his genius, and all the energy of his mind, he was forced to get up fifteen or sixteen little churches.

The Chairman inquired whether the lithographed copies in the work of M. Lassus were faithful representations of the original drawings.

Mr. Burges said he had compared several of the lithographed copies with the originals, and that they were in fact too correct, inasmuch as many of the ragged lines had been copied in *fac simile* fashion, which imparted a certain weakness to them. In fact, Villard de Honnecourt's drawings were executed with a firmer hand than was shown in the copies.

Mr. J. W. Papworth observed that Mr. Garling had set the Institute an example, which might be followed with advantage by others who made donations to the library, namely, giving an explanation of what these works contained. With regard to the work itself, it was far more interesting than the preface which M. Lassus had written as an introduction to it. One main fault of that preface was the author's insisting upon claiming for France the merit of all the great architectural works out of France. The only merit, in fact, which the preface contained, was that which was borrowed from "Pugin's True Principles." He (Mr. Papworth) leaned to the opinion that architects now-a-days knew a great deal too much of everything, and not enough of their own particular profession. They were expected to make their own drawings, to be good painters and sculptors, and, in addition, masters of all the handicrafts incidental to the vocation of building.

Mr. Digby Wyatt observed that the paper read by Mr. Garling was extremely interesting in an historical though not in an esthetic point of view. The work of Villard de Honnecourt established the fact that, in certain instances, the architect, the designer, and the sculptor were one and the same person; that they studied from nature, and that the entire tendency of Mediæval art was extreme simplicity. This was shown to be the case in all the sketches, and there could be no more interesting sequel to the paper read by Mr. Garling, than if he were to direct attention to the working drawings of the architects of the Mediæval period, with the view of showing that their style, which they practised with so much success, could be made really practicable in the present age. With regard to the drawing of the Mediæval period, many very interesting specimens were in existence in various parts of the Continent, including France, Spain, Belgium, and Germany. At Rheims, it was discovered that the register of deaths was written on sheets of parchment, which contained some interesting drawings, one of them representing the great façade of a church, drawn with a masterly line, but with extreme severity, proving that the architects of that day were content to obtain simple effects without troubling themselves with elaborate details.

Mr. Ashpitel observed, that whatever diversity of opinion there might be about the merits of M. Lassus's work, there could be but one opinion as to the thanks which were due to Mr. Garling for his extremely interesting and carefully-prepared paper. He begged to move a vote of thanks to Mr. Garling.

Mr. G. G. Scott seconded the motion, and observed, that it was extremely interesting to see, however little of, the interior of an artist's studio of a great period. The little peep which Mr. Garling had afforded them into the inner life of an architect of the thirteenth century was in his (Mr. Scott's) opinion interesting and suggestive, although he feared that some gentlemen in the room were not disposed to agree with him in that declaration. But if they were really, as they ought to be, artists and architects, they would feel an interest in it. Looking at the question merely in an historical point of view, it was one which had many claims upon their attention. The idea as enunciated by Lassus, that Villard de Honnecourt was the man who imported French Gothic architecture into Germany was an interesting subject of inquiry. The grounds upon which Lassus argued were certainly very slender, but still there was something in them. But putting aside the conjectures of Lassus, with regard to the origin of Villard's mission into Hungury, which appeared to be veiled in obscurity, and upon which the artist had not himself thrown any light, it was interesting to trace the manner in which he seized everything he saw, as likely to aid him in his art, and with what marvellous facility he recorded it on paper. He (Mr. Scott) fancied there were not five members of the Institute who could draw figures as well. Mr. Burges no doubt could do so, but speaking generally, he did not believe architects of the present day could produce anything of the kind so good. Well, he should like to see a day appointed on which the architects would try and draw as well. It seemed to him that the architects of the Mediæval period drew as they wished their works to be executed, while architects of the present day drew, not works which could be carried out but, works for which they would like to get commissions. The old architects did not, it was true, make pretty pictures, but they made designs from which the works could be executed, while our architects often made drawings which the workmen could not carry out.

Professor Donaldson said, that although there was a good deal of querulousness in the language used by Lassus, there was still a good deal of truth and much suggestive matter in his pages. He (Professor Donaldson) had read the work twice, and had arrived at the conclusion that it was the production of a thinking mind. He could not go the length of saying that the preface was to be disregarded altogether by the student of architecture.

Mr. Marrable confessed that in his mind the drawings of Villard de Honnecourt were not capable of conveying any practical knowledge to the student. He also felt inclined to differ with Mr. Scott, who contended that architects of the present day could not make working drawings from which the men could work, as his experience led him to an opposite conclusion. With regard to the question before the chairman, naming a vote of thanks for the paper read that evening, he was of opinion that the votes of the Institute should be given with discrimination, and that, as a matter of form, a vote of thanks should not necessarily follow the reading of every paper. With every desire to acknowledge the great care and ability involved in the preparation of Mr. Garling's paper, he felt bound to express his regret that so much time and labour had not been employed upon a subject of greater interest to the Institute as architects. It seemed to him that the paper was entitled to credit rather in an archæological than an architectural point of view.

Mr. Digby Wyatt reminded the meeting that that which was the history of art to the student was also his best lesson. There was certainly an important historical lesson involved in the records of Villard de Honnecourt, which must possess attractions for that portion of the profession which was interested in the legitimate revival of mediæval art.

Mr. Penrose remarked that he was disposed to agree in a great portion of what had fallen from Mr. Wyatt and Mr. Marrable. He was of opinion that too much prominence had been given to archæological papers, but that read by Mr. Garling did not, he thought, come within the category, because, although old, it was not, strictly speaking, archæological, it was a matter of living importance, and he thought the Institute ought to be extremely thankful to Mr. Garling for his communication.

The chairman said that, in his opinion, they were much indebted to Mr. Garling for the example he had set by explaining the contents of the volumes he had presented to the Institute.

The vote of thanks was then passed *nem. con.* and the proceedings terminated.

TEMPERATURE IN EUROPE.

The following was the temperature on the 4th inst, at eight o'clock a.m. as received by telegraph, at the Imperial Observatory, Paris, reduced to Farenheit:—

	Deg.	Min.		Deg.	Min.
Dunkirk	38	1	San Fernando (3rd)	59	2
Mezières	24	8	Rome (3rd)	39	2
Strasbourg	22	1	Turin	37	2
Paris	30	1	Florence (3rd)	42	8
Havre	38	8	Brussels	31	9
Brest	37	2	Vienna	34	1
Napoleon } Vendée }	32	9	Lisbon	48	7
Limoges	27	2	St. Petersburg	37	0
Bayonne	33	8	Moscow (3rd)	14	0
Avignon	32	5	Nicolaief (3rd)	30	9
Lyons	29	5	Warsaw (3rd)	24	4
Besançon	36	7	London, Hyde-park, at 9 a.m.	48	0
Algiers (3rd)	63	3			
Madrid	32	2			

Thus our metropolis has had a higher temperature than nearly all Europe, except Florence and Lisbon. Madrid was colder than St. Petersburg, as were also Paris, Lyons, Mezières, Strasbourg, Limoges, Bayonne, Avignon, Besançon, Turin, Brussels, and Vienna.

INSTITUTION OF CIVIL ENGINEERS.

RAILWAYS IN PORTUGAL.

The first meeting of the session 1858-59, held on the 9th inst. Mr. Bidder, V.P. in the chair, was occupied by receiving a "Description of the Line and Works of the Lisbon and Santarem Railway," by Mr. J. S. Valentine.

The author then proceeded to remark that railways in Portugal were entirely under the control and protection of the Government; the method of granting concessions, as well as the general supervision exercised over the works during construction, being similar to the French system. The ruinous competition, and the costly Parliamentary contests, the result of the English system, were therefore avoided; but, on the other hand, the constant interference of the Government officers with the practical execution of the works, as well as that which might be apprehended in the working of the traffic, was attended with many and grave disadvantages, of which the author narrated several striking instances.

The land required for railway purposes might be purchased either by private agreement, or by legal expropriation; but the latter process was generally found to be necessary, on account of the difficulty of ascertaining that all rights and interests in the property were extinguished. The paper then proceeded to describe minutely the expropriation system, which was not an expensive process, nor did it occupy much time. When the parties could not agree as to terms, arbitrators were appointed; but should dissatisfaction still be felt, an appeal could be made to the superior courts in Lisbon. This system, although good in principle, and simple and expeditious in practice, was liable to great abuses; consequently, the cost of the land for the Santarem Railway proved

much greater than was expected, in some cases exorbitant prices having been demanded and obtained.

The author then narrated the successive stages which resulted in the Central Peninsular Railway of Portugal, to the first section of which, from Lisbon to Santarem, a distance of forty-five miles, he was appointed engineer; not, however, until the contract had been determined between the Government and the company.

The works were inaugurated on the 17th of May, 1853, and shortly afterwards a company was formed, the capital of which was 800,000*l.*; the contract for the entire execution of the works, and for furnishing the rolling stock, being taken by Messrs. Waring, Brothers, and Shaw.

This line was constructed along the northern side of the valley of the Tagus, skirting, and in places passing through, the high grounds which bounded it, and which, in several localities, especially at Lisbon and Santarem, terminated in high cliffs on the river itself.

The total length of the line was nearly forty-five miles. The gradients were for the most part good, upwards of thirty miles being pratically level, and the steepest inclination being 1 in 111. The curves were also equally favourable, and the works were generally of an easy character. The earthworks averaged 45,535 cubic yards per mile, the cuttings being principally in a dry loam, intersected by thin beds of hard rock, composed of marine shells. The embankment along the margin of the Tagus at Lisbon, which consisted of soft, black mud, was formed of clay and rock from the cuttings, the latter affording an admirable protection to the outer slope, which, by the action of the waves between high and low water, gradually assumed a form resembling a natural beach. The fiscal engineer insisted that a heavy retaining wall of masonry should be constructed, but this demand was successfully resisted, and the result had justified the expectations of the author. The bridges were neither numerous nor large; the only ones considered worthy of notice in the paper being those over the public road from Lisbon to Poço do Bispo, at Xabregas, and over the river Sacavem. The former consisted of one skew opening (at an angle of 32° 30') 22 feet 4 inches in width on the square, and of three arches, each 22 feet 6 inches span, and one 9 feet span in the east abutment. The principal part of the work was executed in dressed ashlar masonry, with rubble backing, the arches being turned in brick, and the superstructure of the main opening being formed of cast iron. The Sacavem bridge consisted of two side arches, each 25 feet span, and of a centre opening 100 feet span, crossed by two wrought-iron box girders, each 108 feet in length, 8 feet in depth, and 2 feet in width across the top and bottom plates; thirty-five transverse girders, each 25 feet 6 inches in length, 15 inches in depth, and 6⅝ inches across the top and bottom flanges, rested upon the bottom flanges of the large girders. The centre breaking-weight of one iron girder was 303 tons, and of the bridge, equally distributed, 1,212 tons. The total weight of the iron work was eighty tons.

The permanent way was composed of a single-headed rail, weighing 60 lbs. to the yard, transverse timber sleepers, and ordinary cast-iron chairs, which were attached to the sleepers by compressed oak trenails. The ballast consisted, for the most part, of a coarse red grit, which set well, and being porous, formed a good road.

FOREIGN ENGINEERING AND OTHER INTELLIGENCE.

On Saturday, the 30th October, the left bay of the Suspension-bridge, over the Rhone, at Pouzin, was carried away, at mid-day, by a gust of wind: it was nearly 100 mètres span. The two other bays have not suffered, nor were the telegraph wires broken. The flooring of the bridge being under water, all communication was for a time intercepted between Drôme and Ardêche, at a point much frequented, owing to the neighbouring forges and the Loriol and Aveyron railway stations.

According to the *Courrier du Bas Rhin*, last week, M. Birkel, a landed proprietor, had a new wine-barrel rinsed out with *eau-de-vie*, and placed in a barn. This done, the cooper introduced, as is usually done for the sake of purification, a lighted sulphur match into the barrel, and bunged it up. Some instants afterwards, the head of the barrel was blown to atoms with a fearful report. A jet of flame (no doubt, alcoholic vapour ignited) seized all inflammable substances, which were heaped up in the building, and in a few minutes the whole barn and contents were in ashes.

A prospectus has been issued by the "Compagnie Universelle du Canal Maritime de Suez," founded (as it states) by a decree of his Highness the Viceroy of Egypt, as follows:—

"M. Ferdinand de Lesseps, concessionist of the Suez Canal, in execution of a mandate which he has received from the Viceroy of Egypt, opens a public subscription after having assured himself of the concurrence of leading financial authorities of Europe. The Suez Canal is destined to re-establish that abbreviated communication between the two worlds, which the discovery of the Cape of Good Hope (!) had caused to be abandoned. In order to preserve, for this work, that character of magnitude and universality which belongs to it, M. de Lesseps calls upon all the capitalists of every nation to participate therein." The views and expected commercial advantages, privileges, &c. are then set forth.

The inauguration of the railway which unites Luxembourg with the rest of Belgium took place on the 27th ult. by the King Leopold. This new line traverses twenty leagues of mountains and valleys—some embankments being 60 feet high, and cuttings, 40 feet: the summit level is 450 mètres above the level of the sea. In the section from Aye, near Marche, at Recoque, at the most elevated point in Luxembourg, near the *baraques* of Fraiture, the greatest struggle took place between human power and natural obstacles. 300,000 kilogrammes of powder were here used for blasting purposes, and the beholder is astounded at the enormous heaps of blocks and fragments which remain as witnesses of extraordinary labour and perseverance.

INSTITUTE OF CIVIL ENGINEERS IN IRELAND.

An ordinary general meeting of this body took place on the 9th instant at Dublin;—Mr. M. B. Mullins, the recently elected president, in the chair. The chairman expressed his gratitude for the honour conferred on him, and announced his intention of bringing at an early moment before the body "some memorial notices of distinguished Irish engineers," and a general history of the profession itself.

Messrs. Kelly, of Madhopoora, Punjaub, India, and John Harchen, of Hollywood, Belfast, were admitted as members.

Mr. Bower read the first of a series of papers descriptive of works on India, designated "Indian Engineering Notes," accompanied with a large map illustrated, which he presented to the Institute. On this are shown the various lines of railway, both guaranteed and projected, and other great works now in course of erection. It appears by this that 7,115 miles are projected and 4,543 guaranteed, but only 346 open for traffic as yet. Guaranteed capital, 27,514,000*l.* The paper further detailed the great works on the Indian Peninsular line, the tunnels through basalt, bridges 160 feet high, cuttings 60 feet deep, &c. &c.

The other works described comprehended the Godaverry weir, 4 miles long and 30 feet high (the Calcutta drainage and sewerage cost 4,673,000 rupees), Mr. Clark, C.E.; the Bombay water-works now completed, Mr. Conybeare, C.E.; the intended lighthouse on the Great Basses Rock of the South Coast of Ceylon; the irrigation works of the river Canvery, and the proposed great reservoir of the Neilgherry Hills, with the valuable addenda of schedules of prices, and notes of the value of labour in India and Ceylon.*

RESTORATION OF STATUARY, LINCOLN CATHEDRAL.

Having observed several inaccuracies in the notice which has been taken, in a provincial paper, of the recent restoration of ancient statuary on the exterior of Lincoln Cathedral, I hope you will accept a few remarks in reference to the subject.

The three figures have been regarded, perhaps, without sufficient authority, as those of King Edward I. and his queens, Eleanor of Castile and Margaret of France.

They form part of a grand series, and there is an evident connection between the two royal figures on the south-east buttress.

There is no heraldic device to lead to their identification. The ample folds of the girt tunic and mantle of the warrior king conceal the chain mail, except upon the hand and arm, on which rests the plain heater-shaped shield, and on the feet, which trample on a prostrate foe.

The companion figure is clad in a kirtle, fastened with a girdle, which appears beneath a cyclas, or sleeveless tunic and mantle.

A sceptre, of which traces remained, was held in the left hand. The heads of both figures have been destroyed, although indicated by Carter in his etchings of ancient sculptures.

The third figure, on one of the southern buttresses, conjectured by some writers to be intended for Queen Eleanor, whose aspect is so familiar, from the matchless effigy in Westminster Abbey, and the statues on the crosses erected in her memory, has no especial attribute of royalty, nor any apparent connection with the statues at the south-east angle, before described.

The remains of the head, which fell a few years since, through decay, have been happily preserved. The features are extremely beautiful: the hair, though free, is not long and flowing, but appears in a few graceful curls issuing from beneath a veiled diadem, as was customary with ladies of rank in the thirteenth century, and not very different in effect from that represented in the effigy of a lady of the Fitzalan family, in Bedale Church, Yorkshire, figured in Hollis's Monumental Effigies.

Charles A. Buckler.

THE FOUNTAIN FOR HOLYROOD.

British Artists.

Sir,—In your notice regarding the fountain about to be erected in front of Holyrood, a copy of the one at Linlithgow Palace,—and which perhaps you justly enough call a "mongrel affair,—"you ask if it is not too late to induce Lord John Manners to alter his intention. Perhaps it may not be, if you will be so good as propose a better design, to be in harmony with the old palace of Holyrood. It is very easy to find fault, but look at what has been done in Trafalgar-square. There is a taste springing up in this country for fountains, and a hint from you might be of service. What say you to a copy of the fountain of Latona at Versailles for Prince's-street Gardens, Edinburgh? Of course it would be quite out of harmony for Holyrood.

A Subscriber.

*** What say we? Why, that it would be a ridiculous insult to our artists. Let the proper steps be taken, and there will be no difficulty in obtaining a satisfactory design for a fountain either at Holyrood or Princes-street Gardens. We repeat our protest against the absurdity of reproducing the ugly anomaly, formerly at Linlithgow, for Edinburgh, and invite the art-lovers of that beautiful capital to make an endeavour to prevent it. To copy at all for such a matter is preposterous, but to copy mongrel ugliness is the conduct of untaught savages. Our architects, in every open foreign competition, carry off the palm: we spend thousands every year in schools of design; and when the governing powers of the country want a fountain they go back to an ugly specimen of the art of a debased period, and copy that,—to say nothing of throwing obstacles (as we are in a condition to prove they do) in the way of individuals anxious to give opportunities to British artists to distinguish themselves and adorn their country! We can scarcely write of it with common patience.

SCOTLAND.

New General Register House, Edinburgh.—Government has just entered into contracts for the erection of additional accommodation at the Register House, and the work will be at once proceeded with. The site immediately adjoins the north-west corner of the present Register Office. The new building will occupy an area of 130 feet square. This new portion will present two façades, one towards Prince's-street, and the other towards Register-street. The style adopted is Italian. The building will be 70 feet in height, and will consist of three stories and a basement floor. The centre portion will be decorated with two tiers of coupled columns and pilasters, resting upon a rusticated base, the whole surmounted by a cornice. The chief entrance from West Register-street will lead directly through a spacious hall into the principal record-room. This apartment will form the great feature of the interior arrangements. It will occupy an area of 75 feet in diameter, and rise to a height of 75 feet, the centre portion being surmounted by a dome and cupola, lighted by a series of circular-headed windows in the former. The room will be surrounded by four tiers of galleries, in which accommodation will be provided, by extensive book-cases for the register of births, marriages, and deaths, and other public records. Opening from the entrance-hall, corridors conduct to numerous public offices connected with the Court

* We shall feel great pleasure in chronicling the proceedings of "The Irish Institute of Architects" likewise. We see no reason why that also should not hold instructive conversazioni.

of Session and other public departments. The plans have been prepared by Mr. Matheson, of Her Majesty's Board of Works. The contractor for the work is Mr. D. Rae, and the building, which will cost about 26,000*l.* will be finished in two years.

Houses for the Working Classes.—A meeting at Edinburgh, of gentlemen interested in the formation of an association for the erection of houses for the working classes, was lately held, when various suggestions were made; and Mr. Muirhead, of Muirhead and Sanderson, builders, according to the local *Post*, stated that the financial result of building a range of brick tenements at New Broughton was that, for houses with two or more apartments, rents averaging 9*l.* 5*s.* had been obtained, and that the interest on the capital expended was not less than 10 per cent. Mr. Muirhead thought brick houses quite as comfortable and warm as stone erections, while they could be built at a considerably less cost. Dr. Begg suggested the building of cottages similar to what was done at Birmingham. Mr. Allan having read a prospectus of the proposed association, it was remitted to a small committee to report on the same to a future meeting.

Corn-Exchange for Kirkaldy.—At a recent meeting of the Town Council, a minute was read regarding the appointment of Mr. Smith, Mr. Hay, and Mr. Cousin, architects, to send in plans for a new Corn-Exchange, and the plans were laid before the council, viz. those of Mr. Hay and Mr. Smith: Mr. Cousin did not compete. The plan by Mr. Hay was estimated to cost from 1,600*l.* to 1,800*l.*; and that of Mr. Smith, 1,800*l.* A plan by Mr. Forfar, of Edinburgh, was also sent in.

Arbroath.—The Royal Bank of Scotland has, for the purpose of building a bank, taken a piece of ground situated on the east side of the High-street, Arbroath. The contracts by the different tradesmen are now sent in. Messrs. Peddie and Kinnear, of Edinburgh, are the architects. Other business-premises are about to be erected.

Perth.—A Perth baker, Mr. Sharp, left 15,000*l.* for educational purposes in that city. The trustees have commenced to erect a large building in Methven-street, to be called Sharp's Educational Establishment.

CHURCH-BUILDING NEWS.

Oakham.—The church of All Saints, at Oakham, Rutland, has been restored and re-opened. A new chancel roof, of oak, panelled in the Decorated style, has been reared. The roofs of the nave, aisles, and transept have been restored with English oak, and all covered with new lead. The ceiling of the south chapel is in oak-moulded ribs and carved bosses at the intersections, with traceried panels. The western door is now made the principal entrance, the ringing chamber being constructed over the archway. New oak frames have been introduced for the bells, two of which have been re-cast by Messrs. Mears, of London. A new clock, with quarters, by Dent, of London, will shortly be erected in the tower. A new five-light east window has been introduced into the chancel, and corresponds with the Decorated architecture of that part of the church. The interior shafts of the window are composed of Derbyshire marble, polished. The edifice has been denuded of galleries, and re-seated with open seats of wainscot, with moulded ends, having carved terminations. A low wainscot screen divides the chancel from the nave, and is filled in with open tracery, carved. The panels of the pulpit, which is of oak, are filled in with tracery. Screens separating the aisles from the chancel have moulded tracery, with embattled cornice. The sedilia is of oak, and has carved elbows occupying a portion of the south screen. The stalls and reading-desks in the chancel have foliage representing the holly, oak, vine, and hop on the terminations. The altar-rail is of oak, with lozenge-formed compartments. The old south doors have been renovated in accordance with their original features. The west and north doors are of oak, and framed in small compartments, covered with rusticated boarding, and have ornamental hinges, &c. The floor of the body of the church is laid with black and red Staffordshire quarries. The chancel and sacrarium are paved with encaustic tiles, from designs furnished by Lord Alwyne Compton. The windows have been entirely re-glazed with cathedral glass, in a small lozenge pattern. The interior stone-work has been denuded of whitewash and brought to its original colour, the whole of the carving being restored. The old Norman font has been cleaned, restored, and fixed at the western entrance. The old stoves have been removed, and a new hot-water apparatus, supplied by Messrs. Roper, of Westminster. The edifice is lighted with brass gas standards, furnished by Mr. Skidmore, of Coventry. The work has been carried out by Mr. Buddle, of Peterborough, the contractor. The masonry has been executed by workmen in the employ of Mr. Thompson, of Peterborough. Mr. Geo. Clarke, who has the supervision of Lincoln Cathedral, has been acting as clerk of the works. Mr. Scott was the architect employed. The actual cost of the restorations will, it is thought, amount to upwards of 6,000*l.*

Whitchurch.—The church of St. Mary, Whitchurch, Oxon, has been restored and re-opened. The edifice has been almost entirely re-built, from the designs of the architect, Mr. W. Woodyer, of Guildford; the builder being Mr. Thomas Carter, of Oxford. The building now consists of the restored nave, from which the gallery has been removed; a chancel, which has been beautified; and a new north aisle, communicating with the nave by a stone arcade of four moulded arches: the aisle is prolonged, so as to form a chancel chapel. The floor within the altar-rails is paved with tiles, and the reredos is formed of embossed tiles. At the west end of the nave is a wooden arcade of three arches supporting the tower and spire, which have been rebuilt, and covered with oak shingle. The walls externally are of flint, with Bath stone dressings. The Tudor porch on the south side has been restored. The new aisle has an entrance to the north, on which side it is lighted by three windows, and three small lancets in the chancel chapel. The large window at the east end of the aisle is filled with Hardman's glass, by the officers of his regiment, to the memory of Captain E. S. Powys. A memorial of stained glass is to be placed in the west window of the aisle, and the three lancets will be memorials. Another monumental window will be placed in the aisle, and the east window of the chancel will be filled with glass from Messrs. Hardman, to whose care all of the windows have been entrusted. The seats of the church generally are of oak, and all open, low, and uniform. They are of stained deal, excepting the chancel, which is divided from the nave by a low screen and gates of oak. The roof of the chancel is waggon-shaped. There is a gain of seventy sittings for the poor.

Ware.—Christ Church, Ware, erected on the Amwell side of the town, at the cost of Mr. R. Hanbury, of Poles, has been opened for divine service. The edifice is of the Early English style of Gothic architecture, and consists of a nave, north and south aisles, chancel, vestry on the south side, with organ gallery over, north and south porches, and a tower with broach spire. The exterior of the building is of Kentish ragstone, in regular courses, with quoins and Bath stone dressings; and the internal walls are faced with light coloured bricks, rubbed down, and pointed. From the short round stone columns of the nave, spring arches, formed of splayed bricks, which are relieved by the introduction of yellow malm bricks. The roof, which is plastered, is sustained by open timbers of deal stained and varnished. On each side of the church, there are six two-light pointed windows, glazed in coloured quarries; and at the western end of the north and south aisles there are similar windows. In the chancel there is a three-light window, with a geometric window above, and at the western end of the nave a three-light window, with a small pointed oval window above. All these are glazed in coloured quarries. The aisles are paved with Yorkshire stone, the chancel with black and red Staffordshire tiles, and the space within the communion railing with tiles. The seats and fittings of the church are all of deal, stained and varnished. The church is seated for 800 adults. The seats, of which 400 are to be free, are open, and low. The building is heated by hot water, and the arrangements for this and ventilation have been carried out by Messrs. Benham and Son. The parsonage is built of red bricks, relieved by white. The centre of the ground, between the church and the parsonage, will form a site for schools. The works have been executed by Messrs. Dove, Brothers, builders, of Islington, under the superintendence of Mr. J. Brown, clerk of the works. The glazing has been done by Messrs. Powell, of Whitefriars. The architect is Mr. N. E. Stevens, of London.

Tonwell.—A new chapel has been erected in the hamlet of Tonwell, parish of Bengeo, between Ware and Hertford. The style of the structure, says the *Hertford Mercury*, is Plain Gothic, its relation to Gothic being shown in the roof and gables. The edifice is built of red bricks with white brick rustic quoins and window-dressings, and oak-mullioned window-frames, with iron casements. The inside walls are stuccoed and jointed, and the principals of the roof are open, stained, and varnished. The seats and internal fittings are of white deal, sized and varnished. The chapel stands east and west, and at the east end there is a small chancel. At the west end the building extends in the form of a transept to the south, this portion being, on week-days, separated from the chapel by a partition, and used as a school. In that portion of the edifice which may properly be called the "chapel," there are seats for 120 persons, independently of the space at the west end, where there is accommodation for 150 children. The cost of the building, exclusive of the site (which has been given by Mr. Smith, who also defrays the entire cost of the erection) exceeds 900*l.* The architect was Mr. Morgan, of Hertford, and the builder, Mr. Sheffield, of Bengeo.

WHAT IS A WELL-VENTILATED ROOM?

When putting this question in a previous page, I tried to express the generally-felt want of a reply, and was greatly grieved on reading "E. L. G.'s" remarks in the last number, wherein the subject has been treated in so light a manner. Having read that portion of his long and somewhat irrelevant observations which refers to the question, I gather the answer that a well-ventilated room is ——, or, to use his own words, that an ill-ventilated room is like a diving-bell!! Being always obliged for even the smallest amount of information, I return my thanks for this ——, and again put the question,—"What is a well-ventilated room?" The answer (if any one of authority on the subject will take the trouble to reply) will, I am sure, not be worded in the off-hand manner used by "E. L. G." nor need the question serve as a handle for an attack upon the profession, for which "E. L. G." appears to deem it so peculiarly applicable. I have always understood that the ensuring a well-ventilated room depends on many points: as 1, an outlet for foul air; 2, an inlet for fresh air; 3, the position and proportion of these openings; 4, the warming or cooling of the air according to the season; 5, the mode of regulating the admission of air subject to the number of persons, or the heat, in the room; with other important and relative subjects. *When* all these points are settled by the doctors, *then* we shall know "what is a well-ventilated room." At present, if I use A's system, B says it is bad; if I use C's, B says the same; if I use the natural system, the doctors suggest it is hurtful to the body; and so on.

"E. L. G." *may* flatter himself at not having had his fact doubted; but was it worth a line either way? As "E. L. G." imagined, I have the honour to belong to the profession, and acknowledged myself one who charges on the outlay-system; and for the best of all reasons—*it is most satisfactory to myself and to my clients.* They know at once what the architect's charge will be. It is also most satisfactory to myself, as there is no grumbling after my duties are over. Now for the other side. How does "E. L. G." charge? Does he get paid by the job? agreeing with his clients beforehand if required? if so, how does he calculate the time and labour that should be bestowed upon it? This must be guess work. Then if he finds the job takes longer time, does he shirk it, or get less profit? Say this is not the plan adopted, but that he charges by the time *the work has taken.* Well, he knows the time, say three days two hours: at what rate does he charge his time? two, three, four, or five guineas, per diem? How does he prove his time to be worth what he estimates it at? Will the client be satisfied with the architect's appreciation of the value of his own time? How can "E. L. G." even prove to his client that he has fairly spent the time stated on the work? This mode I hold is a suspicious way of making out an account, and it is due to the architect's position, especially, to be placed above all suspicion. The solicitor's charge is generally made out piecemeal, as all those who have had the misfortune to consult them well know. I for one would gladly have a bill, "To carrying your claim for 50*l.* through the County Court," or whatever the case may have been, "at 20 per cent.—10*l.*" and have done with it, than to receive a long affair of some three or four pages of foolscap, ending with the same amount.

The architect can certainly get more money out of a client not disposed to quarrel with a detailed account, but I believe those who so charge are seldom applied to a second time, the clients preferring the outlay-paid system, whatever may be the per-centage agreed upon. But what happens if the client be disposed to quarrel with the amount? Does "E. L. G." accept less, or go to law for the difference? After all that may be said against the outlay mode of remunerating the

professional man, if he perform his duties in carrying out a work of 200*l.* cost, and agrees to do so for, say 10*l.*,—well, is it not 5 per cent. on the outlay? say 20*l.*,—well, is it not 10 per cent.? and so on. I again repeat my conviction that a detailed bill for services is not *agreeable*, either to the professional man or to the client; and I think the length of time the system has been acted upon proves the point.

I trust that "E. L. G.," in the remarks he proposes to send you on this subject, will temper his language somewhat more in accordance with that respect due to his brethren, who at least are gentlemen, whether they happen to agree with his views or not. Should the language be otherwise, I for one shall decline to enter with him upon the consideration of this highly important subject.

A Younger Member.

ST. PAUL'S CATHEDRAL AND THE EVENING SERVICES.

The arrangements for the evening services, to be commenced, we believe, on the 28th inst. are being forwarded. A temporary pulpit, of large size, standing on twelve small columns, has been erected at the east end of the nave, on the south side, and near it, on the floor level, an organ has been built. The floor under the dome is covered with the elastic floorcloth called Kamptulicon (by Messrs. Treloar), which serves as well to produce comfort as to lessen noise.

The arrangements for warming, made by the London Warming Company, of Great George-street, Westminster, consist in the placing in the crypt of six of their stoves, and opening connection with the nave by gratings. By means of these, cold air will be taken from the nave, and warmed air supplied to it. The stove, as our readers know, is that patented by Mr. Gurney, and consists of a plain interior cylinder, and a series of perpendicular radiating wings; the whole placed in a pan of water, the water being regulated in depth to produce any required amount of evaporation. The vapour passes, in conjunction with an ascending column of air, over the external surface of the stove, rising up between the wings, and by this means prevents the stove from being over-heated, and the air from being over-dried or burnt. The entrances to the cathedral for the evening services will be, we believe, by the two aisle-doors at the west end.

ARCHITECTURAL EDUCATION.

THE SKETCH-BOOK OF VILLARD DE HONNECOURT

As I find that some remarks I ventured upon, during the discussion at the Institute upon this curious relic, were misunderstood, through my having expressed my meaning imperfectly, and as my intention was not to give offence, but to call attention to what has long struck me as the great defect in our architectural education, I would beg your permission to explain my meaning more clearly.

It seems clear, from all the evidence we have, that, during all the great periods of our art, the artistic powers and education of the architects (whether greater or less) were directed wholly to the *perfecting of their actual works*, and scarcely at all to making pictorial representations of them. I will not say that the converse holds good with ourselves, but I do strongly think that, in our artistic education, far too great a prominence is given to making pleasing pictures of our works, whether completed or in prospect, and far too little to the cultivation of the power of designing, in a really artistic manner, the decorative portions of our works themselves, and so impressing upon them that stamp of art and imagination which delights us in the works of many former periods.

Our modern power of drawing the buildings themselves pictorially, and in true perspective, is a most valuable accomplishment, and far be it from me to underrate it. There is no doubt that it ought to be a means of facilitating the actual designing of our buildings: our working drawings, also, of the construction, and of all the more mechanical forms, in our designs, are probably fully equal to those of any former time: what I referred to in my remarks was the *decorative* portion of our buildings, and my object was to call attention to the importance of so directing our artistic studies, and those of our pupils, as to ensure to ourselves the power of inventing, and directing others in the execution of those more imaginative and unmechanical parts of our buildings, rather than allowing our art-education to be absorbed wholly, or in too great a degree, in picture making, which I cannot but think has been very much the case, and that to the great detriment of our works *as works of art*.

Now, we see this old architect, Villard de Honnecourt, though ignorant of perspective, unskilled in making pleasant views of buildings, and having little opportunity of viewing the works of classic sculptors, nevertheless taking more pains in fitting himself to direct his art-workmen than is customary at the present day. We find him sketching and designing sculpture in a manner which, however quaint, would shame most of ourselves; drawing animals, birds, insects, &c., from nature; actually going to menageries, and sketching wild beasts, not only while at rest, but when in a state of excitement, and afterwards, as it would seem, designing martyrdoms, and fights with beasts, for his sculpture, with the help of the lessons thus learned; making sketches of any persons, scenes, &c., which happened to occur to him as aiding his art, such as wrestlers, gamesters, soldiers, &c., &c.;—in fact, taking every means of aiding the artistic embellishment of his works, while evidently unable to make pictures of the buildings themselves.

What I wished to suggest was that, while not neglecting that in which we do excel, we should do well to follow the older architects in studying more carefully the means of thus perfecting our own *actual works*; and I heartily wish that we could institute a school of architectural art, having that express object.

George Gilbert Scott.

MR. CHRISTOPHER'S ILLUSTRATION OF BOW STEEPLE.

We have elsewhere printed a warm eulogium, by Professor Donaldson, of the view, plans, and section of the tower and spire of Wren's Bow Church, which have been well engraved by Mr. J. H. Le Keux, from drawings made from actual admeasurement by Mr. John T. Christopher, and to which the silver medal of the Academy, it will be remembered, was awarded. We must, nevertheless, add our own commendation of the work, which forms a sheet well adapted for framing for an office or library. This careful, measured illustration of Wren's best steeple, is one of those things a man seldom does completely more than once in his life, and it serves as a special piece of training, and an evidence to be pointed to thereafter of his skill and perseverance.

The extreme height of the steeple is 221 feet 8½ inches; the width on the ground, 31 feet 11 inches. It was commenced in 1671, finished in 1680, and cost 7,388*l.* 8s. 7d. Amongst the memoranda on the sheet, a view is given of the upper part of the spire before the restoration by Mr. Gwilt, and it is noted that a metal cramp, at about 20 feet down from the top of the stonework, expanded from ½-inch to 1½-inch, and threw the stonework above out of perpendicular. There ought not to be any occasion to publish further instances of this sort, but there is. We trust that Mr. Christopher will find a sufficient number of admirers of the works of Wren, or of the ecclesiastical structures of the metropolis, to repay his outlay and exertions.

HORLEY CHURCH, SURREY.

Mr. Editor,—Do go and look at the interior of this edifice, and point out to the authorities that it is not exactly as we now expect to see a church. It is in a miserable state: such carpenter's Gothic! And the railing of the tower, *inside* the church, is the most comical "screen" you ever saw: it is just like the frontage to a poultry-yard or a large bird-cage. Poked out of the way, covered up behind pews, and smothered with whitewash, is a very fine full-sized effigy of an armed knight, the legs *not* crossed, feet resting on a capital lion: the whole body is covered with chain armour, and over it are a breastplate and helmet: his left hand holds his shield, which lies beside him; and the right arm reclines passive at his side. The chimneys of the stoves in the church are supported on iron rods, which run yards and yards along the aisles, till at last they find their way out, with a huge elbow-piece, through the middle of the windows. Just imagine it, in these enlightened days, too. There is an interesting brass of a female here, under a wonderfully fine canopy.

A Traveller.

Fall of a House in Spitalfields.—On the 15th inst. one of a row of old houses in Palmer-street, Spitalfields, gave way, and a lofty stack of chimneys fell through the roof and floors, killing two persons and injuring several others. The adjoining buildings have since been shored up.

ARCHITECTURE AND CHARITY.

THE PROPOSED RAGGED SCHOOL, IN NOTTINGHAM.

The selection of a design by a London architect, Mr. Edwards, already mentioned, has produced a controversy in the local journal, objectors asserting that the invitation of the committee was solely to the architects of Nottingham. The selected architect replies that most of his boyhood was spent in Nottingham, that his family have long been connected with the town and country, and makes the following curious remark:—

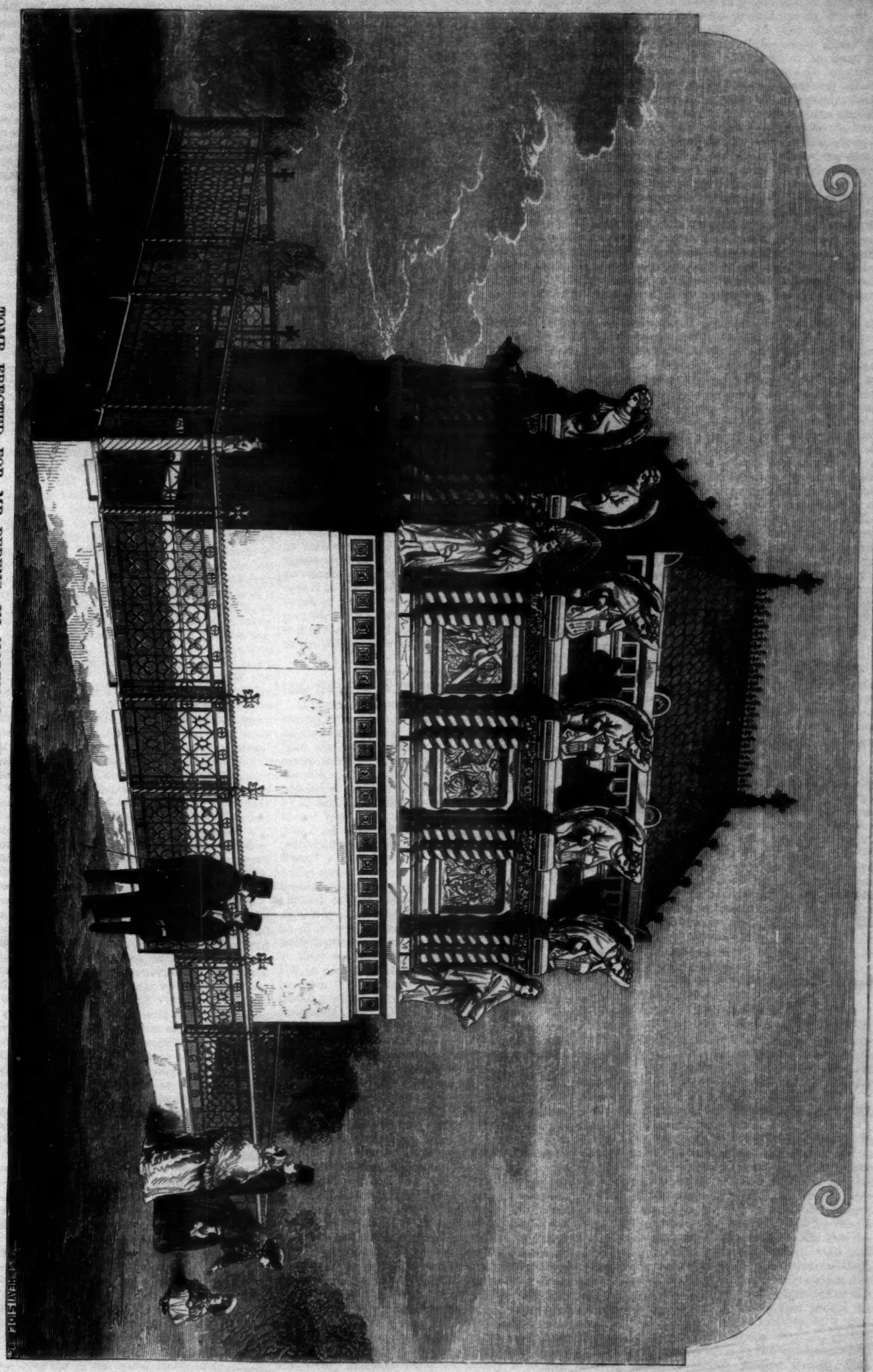
"Indeed, had it not been for the illiberal and extremely uncharitable spirit of several architects of the town, I could not have met with my present success. For, I should very much have regretted the illiberality of the Nottingham architects, in refusing to compete amongst themselves (when *very generously* invited to do so by the committee), because these gentlemen *very properly* required that the successful architect should refund one-half of his commission towards the funds of this very deserving and excellent charity. It is, therefore, with extreme pleasure I find myself unknowingly coming to the rescue; and thus prevent the reputation of my profession from being injured—as it would have been a lasting slur upon these architects, in showing a lamentable want of an ordinary spirit of charity to an institution which, of all others, requires assistance from every one who, in the least, has it in his power to lend a helping hand to those ragged and wretched outcasts of society who are so utterly incapable of helping themselves."

If a refusal to assent to such a *very* generous invitation is to be "a lasting slur" upon architects, we shall soon have a similar condition imposed in the case of every hospital, school, dispensary, almshouse, and church about to be built, to which of course the reasoning equally applies. Does each member of the committee propose to tax himself to the same amount as is coolly required from the architect who *succeeds*, saying nothing of the profitless tax paid by the whole of the unsuccessful competitors in the same cause? This is a sort of charity which architects ought to be very careful, for the sake of others, in advocating. The editor of the *Nottingham Journal*, commenting on Mr. Edwards's letter, says, with a better appreciation of an architect's services than is usually found,—"If there be any want of charity in the matter, it is the committee,—who required the architects to give up one-half of their commission,—who are deficient in that virtue. To insist upon the architect giving up half his commission was a great *injustice*, and consequently opposed to charity, for charity cannot be unjust."

TOMB ERECTED FOR MR. BERENS, IN NORWOOD CEMETERY.

This tomb, recently erected from the designs of Mr. Edward M. Barry, occupies a commanding site immediately opposite the entrance of the Episcopal chapel, and stands within an enclosure of its own, 25 feet long by 18 feet wide. The tomb itself is 15 feet long, and 8 feet 6 inches wide, and measures 16 feet 6 inches to the top of the cross. The base is of red granite, polished, and the superstructure is entirely of marble, with the exception of the sculptured portions, which are of Portland stone. The twisted columns and cornice over them are of Sienna, and the bases of red marble. The remainder of the structure is chiefly of black marble, by means of which a sombre effect is produced. The doors to the vault, the crosses, and the ornamental cresting are of bronze, manufactured by Mr. Potter, who also carried out the railing surrounding the tomb. The sculptures (by Mr. Thomas Earp) are many and varied. The *bas reliefs* at the sides and end represent the principal events connected with the life of our Saviour, beginning with the Annunciation, and ending with the Ascension. The carved cornice is composed of flowers, such as lilies, sunflowers, passion flowers, &c. bearing a symbolical reference to the subjects below them. The figures at the corners are the four Evangelists, and the emblems of each are displayed in the adjoining capitals.

The shields bear the arms of Mr. Berens, and above the same is his motto "Deus protector meus," is given by Minton's tiles let into the black marble. Below the *bas reliefs* a similar mode of treatment is adopted, and the tiles show alternately a crest, and a device formed by the letter B. The bronze doors at the end lead into the burial vault, which is lined with stone and black marble in alternate courses, and has a marble pavement with a large inlaid cross. The doors are divided into square panels, containing each a quatrefoil and a perforated cross. The enclosure round the tomb is formed of black marble and stone, disposed in a chequered pattern. Mr. Field, of Parliament-street, is contractor for the work, the cost of which, we understand, will be about 1,500*l.*



TOMB ERECTED FOR MR. BERENS, IN NORWOOD CEMETERY.—MR. E. M. BARRY, ARCHITECT.

DRAUGHTS *versus* VENTILATION.

SIR,—I am convinced that a writer in your suggestive paper was correct who maintained that the true secret of getting rid of draughts consisted in the fullest freedom of ventilation possible in all directions, consistent with comfort in our varying climate; and that another of your correspondents is also right who urges the advisability of using every endeavour, in all sorts of forms, grave or gay, to produce just such a public opinion in favour of ventilation as has now long existed against draughts. Go where you will, even amongst the lowest and most ignorant of the community, one now finds (unless it be in the abominable old omnibuses of the L. G. O. C. as they call themselves), a fixed opinion (and a very correct one, too, in its way,) that draughts are a very bad thing. So much is this the case, that I, who am in the habit of keeping my bedroom window a little open, summer and winter, had the other day a well-meant and friendly piece of advice given me by our coalman's man,—that I oughtn't to keep my winder open in that there way: it was werry bad for the constitooshin. The advice was as kindly received as I felt it was really kindly meant; a little counter advice, as politeness prompted, however, being offered by way of balancing accounts with the coal-merchant's assistant. But "when Greek meets Greek, then comes the tug of war." I began to see that sanitary reformers had hard work to do, and tough customers to do it with. I must write to the *Builder*, thought I: "*every* little helps." Much as you are accustomed, Mr. Editor, to enter into personal contact with the London poor in their close and unwholesome homes; even you, perhaps, can hardly have an adequate idea of the general and obstinate opinion which prevails amongst them, on the one hand against draughts, and on the other against ventilation. And indeed there *is* some difficulty in the reconcilement of these two points, even in the minds of far less ignorant men than the coalman. Nevertheless, there are ways of promoting the formation of a new public opinion, even through such as he, on these subjects: there are *argumenta ad homines*, for example, just such as I do think I at last succeeded in planting the seeds of in the sagacious noddle of my well-meaning adviser. "Don't you see," said I, "that for the like of you to go about in this way giving such advice is bad for trade? A shrewd fellow like you ought to see that the more windows are open, winter and summer, as mine is, the more coals and coke we must all burn to keep us snug." I distinctly observed the light of candid, infantile conviction spreading, and just about to settle, over his culmly countenance; but it never would have done for a long-headed oracle, such as he clearly considered himself to be, all at once to give way to the weakness of convincibility, and he only shook his head into its wonted state of wise-looking pendulation, while an equivocal grunt concluded the argument *pro tem.*: henceforth, however, I am persuaded we have a new and out-and-out advocate of ventilation in the coalman.

But here, after all, *is* the difficulty with the poor: how are *they* to have free and perpetual ventilation, *plus* sufficient warmth in winter, and *minus* draughts? It is to be hoped, however, that our chief sanitary reformer, the *Builder*, will at all events be able at length, by its unremitting exertions, past, present, and future, to initiate just such a strong, decided, and obstinate public opinion in favour of ventilation as now, and very properly, exists against draughts. The grand secret of draught-riddance does probably consist in full and free ventilation, though it may not be so easy to persuade the poor of this, or at least that economy in coals is at all promoted by it, as it may be to persuade the coalman that the coal trade would be thus promoted.

That was really a rich and exquisite morsel of Yankee "nonsense-poetry," if we can so call it, which you lately gave us in the *Builder*, under the title "Give us Air." Were I sure it was as genuine as it really seemed to be on a first perusal of its skilful and humorous composition, I should say, "Look here," as the Yankees themselves do: here is proof positive that already, in America at least, the lowest and most uneducated are having their plastic minds infused and interpenetrated with the very public opinion of which the *Builder* speaks! And so enthusiastic are they about it, too, that it seeks stilted, excited, and quasi-poetic utterance,—in the most grotesque and whimsical forms certainly,—but at the same time earnestly and seriously, crying aloud for redress, even out of the awful depths of slumland itself.

"Give us *are*, O Sextant!—*pewer* are!"

There is a rude and comical pathos about this and its context, and there are flashes of lurid light in the midst of its ludicrous but piquant foil of grammatical darkness, which cannot but be felt, enjoyed, and sympathised with by every mind not too stupid or too gross for its appreciation, either as a real or as a mock appeal, to that great, glorious, and omnipotent, but still, it must be confessed, a little negligent, referee and inspirer of the Yankee muse,—the "Sextant." It is too clever, I fear, however, to be genuine, although it is one of the best things of the kind I have seen for some time; and the skill of the writer is so wide awake as not only to deceive the unwary but to scarcely anywhere betray the hand of the true writer. It reminds me, by the way, of another capital joke which I remember also reading in the *Builder*, about "Paddy on Vintilashin," in which an Irish navvy, straight from Tipperary, was described as having been found by his overseer in a trench (where he had been set to work at excavation), smashing the gaspipes right and left; and when called to task for doing so, the astounding reply that came straight from the bog with a rich and racy flavour that excelled the brogue itself, but inimitable along with it, was,—"Is it thaise, yer honur? Shure an' thaise needs vintilashin. Put yer honur's nose to thim: feint a thing's in thaise, yer honur, but stink!"

Yes, truly, I fear, there is more hope of poor, polite Paddy's enlightenment on the subject of "vintilashin," straight from his draughty, windy, healthy cabin in Tipperary though he be, than of the like desirable result in the close and musty slums of London. Yet it *is* just by the spread, under all kinds of guises and in all sorts of ways, of such a public opinion as shall reach even Paddy in the bogs and the poor Yankee exhorter of the "sextant of the meetin'-'ouse,"—an opinion which the whimsical and amusing productions referred to in both cases at all events shadow forth and anticipate as ideas, if they do not notify and record as actualities,—that ventilation *will* finally be promoted to that fixed and established favour in the minds of the poor and the humble which already prevails among them (to rather too great an extent, and to the decided prejudice of ventilation) on the as yet antagonistic subject of draughts.

S. R.

ILL HEALTH A CAUSE OF DESTITUTION.

ILLNESS, even among the prosperous members of society, who can not only obtain the comforting adjuncts of life, but can avail themselves of the best medical treatment, the attendance of servants, and the attention of *friends* (who flock round the sick rich, but are seldom to be seen at the bedside of the poor and destitute, when prostrated by ill health), is irksome and painful. If so with them: how much more so must it be with the poor? A writer of the name of Bosanquet, who published a work in 1841, on "The Rights of the Poor," a book, little, if at all known, and probably never well circulated, yet a sterling production, has some pertinent remarks on this important subject, deserving the attention of all; especially those having the means to render aid to their less fortunate fellow-creatures, who, in many instances, have produced the wealth enjoyed by their wealthier brothers and sisters. At page 105, in a chapter devoted to illness and its effects, he says, "The frequency of illness among the working classes, and the extent of the distress occasioned by it, ought to be understood. The feebleness of constitution, and liability to disease, consequent upon habitual deficiency of food among the already distressed, is great; but, with those who have sufficient employment, illness is often the immediate cause of destitution." Dr. Howard has said, "that the mortality among the labouring classes is frequently aided by too long continued toil and exertion, without adequate repose and insufficient clothing, exposure to cold and other privations to which the poorer class of labourers are subjected: unwholesome dwelling-places are also a fertile source of illness." Thus we see the causes of ill-health: let us now note the consequences. With the majority of employers of the *present* generation, if a servant is unable to attend to his employment, he gets no pay until able to resume it: some will keep the situation open until the sick servant recovers, either doing with less hands, or taking on a substitute: others, and it is to be feared a large proportion, will not wait for the space of a few weeks, or even days: a solitary instance, now and then, may be met with where an employer will allow the amount of wages that the invalid servant would have earned if at work; but such cases are chiefly to be met with where a servant has worked many years for an employer, and more often where the grade is that of a clerk, or a shop assistant, and amongst the upper and better class of masters employing these latter. Under the present system, if unfit to labour from ill-health, and thus deprived of employ, a large majority of the people either disinclined to save, or unable to do so from insufficient wages, and the frequent expensive casualties that attend the hard-working classes, rapidly descend to a state of pauperism, misery, and death. In the case of single persons, the case is even worse than with the married, for the latter often obtain charitable help from private sources, which relief is denied to the former on the absurd supposition that having only themselves to look to, they may easily make shift: *how* they are to do so, however, is not explained. Soldiers, sailors, and policemen, when suffering from illness, are better off than the working classes generally, for their pay is not stopped, neither are they turned adrift to starve and die: besides, they receive the best of medical advice and help, and this, too, gratuitously. True, there are hospitals liberally endowed that are accessible, but only for *severe* illness; and they do not provide for the families rendered destitute by the head of the family being unable to labour: they also present other disadvantages easily comprehended. Society is cursed in these so-called enlightened days by an *irreligious* looking to self alone, or, at least, nearly so,—losing sight of the great truth that if we *all* sought *each* other's comfort and happiness, none could go unlooked to or forgotten, as they now are; besides the increased zest given to life from the knowledge that we were doing good to others, and storing up an amount of bliss in a life to come beyond this (even at best). Trials are a preparatory state of existence. It is not only a necessity, but would be an act of simple justice, if employers were compelled to contribute so much per week from the commencement of a service towards a fund for sickness and old age, &c. in proportion to the amount of wages given, allowing for the same out of the money paid for service; so that it would come out of the pockets of the workers in reality, although it would tend to raise wages in many cases to a juster level.

W. D. M. M.

THE NEW VESTRY-HALL, CHELSEA.

A SPECIAL meeting of the Vestry of the parish of St. Luke, Chelsea, was held on Tuesday last, for the purpose of receiving the third report of the Committee of Works and General Purposes, and to award the premiums for the best designs for the new Vestry-Hall.

Mr. Miles occupied the chair.

Mr. Charles Lahee, the vestry clerk, read the report of the Committee of General Purposes, which detailed the progress which had been made to obtain early possession of the site of the new premises for the Vestry-Hall, &c. With regard to the selection of designs for the proposed building, the committee reported that fifteen designs had been sent in, to compete for the two premiums of 50*l.* and 25*l.* to be awarded to the successful competitors, and that the committee had selected six of the number as most meritorious. The designs so selected were—

No. 1. With the motto "Excelsior."
„ 3. Signed "Cadogan."
„ 4. With the motto "Utility and Economy."
„ 5. A Monogram.
„ 7. Signed "West Middlesex."
„ 14. Inscribed with a device.

The committee, having discharged the duty assigned them, by the above selection, now left the matter in the hands of the general Vestry, to select the two designs which they might consider most deserving of the prizes.

On the motion of Mr. Rabbits, the report was received and agreed to.

Mr. E. O. Symons explained that, although he differed from the committee with regard to two of the designs, still, as he stood nearly alone in his opposition, he had conceded his opinion to that of the majority. He was bound, however, to say that he did not think designs Nos. 12 ("Nothing too much") and 14 should have been sent out of the room, while two designs were suffered to remain which were not fit to be compared with them. He presumed that, having agreed to the report of the committee, the next business was to select two designs out of the six remaining, to which the prizes should be awarded. He hoped that, in arriving at a conclusion on this point, the Vestry would be guided by the announcement made to the architects when inviting them to submit designs, namely, that convenience of arrangement was of more importance than beauty of exterior design. Entirely

subscribing to that wise principle, he begged to move that No. 1 be not approved of. There were, in his opinion, several objections to the design: the entrance was not good, and there was no uniformity between the entrance-hall and the staircase. In the basement there was great loss of room; and the surveyor's office being upstairs was, he submitted, a great drawback to the design. Moreover, the elevation was in compo, a material which, he confessed, he disliked very much, when brick or stone could be had. He objected to compo for this reason—that in a climate like ours it soon became black. Then there was no other alternative but to colour or paint it, and this being once done, it became necessary to repeat the operation at stated periods. The expense might, therefore, be said to be continuous, so that in twenty years the probability was that brick or stone would be the cheaper of the two.

Mr. John Todd also objected to No. 1, and contended that the plan of the hall was not convenient, as the shape should have been oblong.

Mr. Tite, M.P. submitted that, as a matter of convenience, it might be desirable to take a general view of the subject, which might comprise a short discussion with regard to the advantages or disadvantages of all the selected designs. The reason he was induced to suggest this course was that, in all probability, whatever design was adopted would have to undergo considerable revision. It appeared to him that the conditions laid down by the Vestry were wise and prudent, and that convenience of plan and economy of execution were to be preferred to beauty of external design. It would, in his opinion, require some tact to carry out any of the designs for the money which the Vestry proposed to vote; and they should also bear in mind that there were other charges to be defrayed, in addition to the 4,500*l.* which it was proposed to expend on the building. There was, for instance, the architect's commission, and the cost of fixtures and furniture; so that, in point of fact, the Vestry must expect to disburse some 400*l.* or 500*l.* over and above the contract price of the building, before it could be used. Under these circumstances, he suggested that, instead of proceeding at once *seriatim* through the designs, they should in the first instance endeavour to elicit from gentlemen present a general view of the objections to which the six designs now submitted for approval might be open. They could afterwards arrive at a more satisfactory conclusion with regard to the two which might be considered worthy of the prizes.

Mr. Leete (churchwarden) inquired whether it might be possible to take the internal arrangement of one plan and the elevation of another. He was of opinion that one prize might be given for elevation and the other for internal arrangement.

Mr. Tite again urged the necessity of looking more to the plan than to the elevation. It would be easy, when they had got a good plan, to modify the elevation in accordance with the vote of the Vestry, so as to combine economy of expenditure with convenience of design and substantiality of materials. He quite agreed with Mr. Symons in his strictures upon compo, which he considered to be very ill adapted to the building they had in view. He suggested, as the most prudent course, to decide upon a plan according to its merit in regard to convenience and arrangement, and not on account of the beauty of the design.

Mr. Rabbits observed that, in the main, he agreed in the observations which had been urged against plan No. 1. The plan which he approved of was No. 3, marked "Cadogan," which, in his opinion, had the largest number of excellencies and the fewest defects. The hall and entrances were good: the committee-room was 46 feet by 32 feet, and contained four times as many square feet as two of the designs now exhibited. There was also another strong argument in its favour, and that was, that it would not entail any large annual expenditure for repairs.

Mr. John Todd objected to the design of No. 3.

Mr. E. O. Symons said that, taking it all in all, No. 3 was, in his opinion, the best design of the six.

The Vestry then passed to the consideration of No. 4, "Utility and Economy."

Mr. John Todd said he preferred this plan to No. 3, because the basement was excavated, and because he considered the arrangement of the offices superior to that of any of the others.

Mr. Rabbits observed that, in his opinion, No. 4 was next in point of merit to No. 3. The diminished size of the committee-room, as compared with No. 3, was, however, a fatal objection. The narrowness of the hall in proportion to the width, the dimensions being 74 feet by 30 feet, was also a grave objection, as a room so constructed would be not only inconvenient in case of any large attendance of the public, but extremely ill-adapted for public speaking. He felt, however, that the meeting must not be too critical in their taste, as, if so, it would be impossible to agree in any result. There were persons who considered that there was not a single perfect building in the metropolis, and that even the Royal Exchange, which would long remain a monument to the genius of their gifted friend, Mr. Tite, was not what it ought to be.

Mr. E. O. Symons agreed with the last speaker in thinking that No. 4 was the next best plan to No. 3. There were good side entrances, which he considered most important in a municipal building, which might have to accommodate a very large number of persons.

Mr. Hall observed that, although the competing architects had not, of course, given their names, still it had oozed out, somehow or other, who many of the architects were. This circumstance would lead him to regard with some circumspection the eloquence or fervour of gentlemen who advocated in any marked manner particular designs.

The Vestry then passed to the consideration of plan No. 5.

Mr. E. O. Symons observed that there were grave objections to the plan. He objected, in the first place, to the elevation, as the top of the portico was 21 feet above the range of any other portion of the building. It would be also necessary to go down seven steps, and then to mount fifteen in order to reach the hall. This, without the other objection, was, he presumed, sufficient to induce the Vestry to pass the design.

After some desultory conversation on other designs,

Mr. Tite observed, that he was unwilling to detain the meeting by any observations, but that he felt that some opinion was naturally expected from him, and that he was bound to offer the Vestry the benefit of the experience which many years of professional life had given him. He felt that they were indebted to many of the gentlemen who had spoken on the subject, and whose remarks showed that they had devoted much time to the consideration of the various designs. Although he admired design No. 1 very much, still, he thought the objections stated were fatal to it; and that, although it had many merits, the deficiency in the arrangements were sufficient to justify the Vestry in passing it over. With regard to No. 3, it had, undoubtedly, very great merit as a plan. The objections urged against it were, however, valid, as the passage would be long and dark; but this defect might be remedied. With respect to No. 4, it also had considerable merit, and his impression was that the Vestry would have to choose between it and No. 3. As for No. 5, he confessed that he hated "shams" as much as any one. The pomp of the portico might, no doubt, be well bestowed upon large municipal buildings, in cases were there was plenty of money to pay for them; but he confessed that in the present instance he feared that, if the Vestry selected the portico, they might expose themselves to the charge of wasting the public money upon what was not wanted. With regard to the next design, he had nothing to say; but he thought well of No. 15, although it was open to one serious objection, namely, that the crowd attending the hall would have to rush through the centre of the building, to the manifest detriment to the public business. There was, no doubt, a certain amount of economy in Gothic architecture, but, then, it had also a certain amount of incongruity, to which he, for one, always objected. He liked to see plenty of light and air,—the windows opening down from the ceiling, if necessary, and so constructed that when they got out of repair a common carpenter could put them to rights. He had not the slightest idea with regard to the names of the architects who had sent in designs; but he had no doubt that if the Vestry elected the architect of No. 3 to carry out their object he would modify his plan, and suggest an elevation which could be carried out in brick.

Mr. Rabbits then moved that No. 3 have the first prize, and No. 4 the second.

Mr. Watkins moved, as an amendment, that the order of prizes be reversed; that No. 4 should have the first, and No. 3 the second prize.

Mr. Lawrence, Mr. Bury, and other gentlemen having stated their views,

Mr. Tite said, that if he felt they were committed to the style of No. 3 he would not vote for it; but it appeared to him, that as there was to be only one elevation to the street, there could be no difficulty whatever in altering it.

The Chairman then put the amendment, when, upon a show of hands, there appeared—

For	17
Against	16
Majority in favour of the amendment, and of No. 4	1

A division was then called, when the numbers appeared—

For the amendment	17
Against	18
Majority against	1

The original motion, that 50*l.* be awarded to No. 3, and 25*l.* to No. 4, was next put, when the numbers were—

For	17
Against	16
Majority in favour of No. 3	1

In reply to a question, it was stated that the chairman had not exercised his privilege of giving a casting vote, as there was a majority without.

The motion that the second prize be awarded to No. 4 was carried *nem. con.*

A short discussion took place with reference to appointing the architect of No. 3 to be the architect of the proposed building, but no decision was arrived at.

THE ARCHITECTS OF THE NORTH, AND THE SOUTH SHIELDS INSTITUTE COMPETITION.

At a meeting of architects resident in Northumberland, Durham, and Newcastle-on-Tyne, convened by a provisional committee, consisting of Mr. Dobson, F.I.B.A. Mr. Wardle, Mr. Walker, Mr. Watson, Mr. Green, Mr. Johnstone, Mr. Austin, Mr. Dunn, Mr. Higham, Mr. Thompson, Mr. Oliver, and Mr. Lamb, held on the 13th instant, at the Central Exchange Hotel, Newcastle-on-Tyne, to take into consideration the terms and conditions of the advertisement addressed to them by the honorary secretaries of the South Shields Literary Scientific and Mechanical Institution, at which were present Mr. J. Wardle, sen. Newcastle; Mr. J. P. Pritchett, Darlington; Mr. J. Howison, Durham; Mr. T. Moore, Sunderland; Mr. F. R. N. Haswell, North Shields; Mr. Johnson, North Shields; Mr. T. Austin, Newcastle; Mr. S. Oswald, Newcastle; Mr. R. Mawson, Durham; Mr. A. M. Dunn, Newcastle; Mr. M. Greene, Sunderland; Mr. A. B. Higham, Newcastle; Mr. G. Walker, Newcastle; Mr. T. Oliver, Newcastle; Mr. J. G. Brown, Sunderland; Mr. T. Prosser, Newcastle; Mr. R. Lamb, South Shields; Mr. J. Hogg, Newcastle; Mr. J. Wardle, jun. Newcastle; and Mr. M. Thompson, Newcastle; the following resolutions were unanimously agreed to.

In the unavoidable absence of Mr. Dobson, Mr. J. Wardle, sen. was called to the chair.

Letters from Mr. Wilson, Alnwick; Mr. Robson, Durham; and Mr. J. E. Watson, Newcastle, were read, regretting their inability to attend, and their concurrence in the objects of the meeting.

It was moved by Mr. Austin, seconded by Mr. Walker—

That although, in the opinion of this meeting, the sum of 50*l.* is a fair remuneration to the author of the successful "design," the further services expected from the successful competitor are of such a nature as to render the awarded premium utterly inadequate, as a remuneration for the additional labour and expense incurred.

Moved by Mr. Pritchett, seconded by Mr. Thompson,—That the condition which gives "no preference" to the author of the selected design in carrying it out is unjust both to the architect and his design.

Moved by Mr. Thompson, seconded by Mr Brown,—That this meeting most respectfully informs the committee, that the copyright of drawings is in all cases the property of the architect and not of the employer.

Moved by Mr. Dunn, seconded by Mr. Johnson,—That this meeting considers it unjust for the committee not to bind themselves to accept any design, or to be responsible for the drawings whilst in their possession.

Moved by Mr. Moore, seconded by Mr. Haswell,—That holding the views expressed by the above resolutions, this meeting respectfully declines to enter into the competition on the terms and conditions offered by the Institution.

Moved by Mr. Greener, seconded by Mr. Higham,—That Mr. Oliver be requested to forward a copy of the foregoing resolutions to the honorary secretaries of the South Shields Mechanics' Institute.

Thomas Oliver, Honorary Secretary.

The advertisement says,—

"A premium of 50*l.* will be given for the design which may be approved of and chosen by the Institution, and the successful candidate, in consideration of that premium, will be under a binding obligation to furnish, without any additional remuneration, detailed and proper working drawings, specifications, and quantities, which, together with the original and the copyright of the whole pen-and-ink drawings, are to be the property of the Institution; such premium to be paid so soon as the working drawings, specifications, and quantities are furnished, and tenders are

accepted, and contract entered into, for the execution of a building, at a cost of not exceeding 2,000*l*. But the successful competitor will be entitled to no preference for employment as an architect, or otherwise, in the inspection or superintendence of the works during their progress."

The architects of the North have acted very rightly in protesting against this beggarly and unjust proposition.

EMPLOYERS AND WORKMEN IN IRELAND.

Mr. Meade, an extensive builder, and at present the contractor for the new wing to the Four Courts and other large works noticed in the *Builder*, was, with John McNamara, his foreman, summoned to the Dublin police-office by several bricklayers recently in his employ, for causing to be published in the *Freeman's Journal* a certain malicious libel, charging the complainants with fraud, in having taken money to which they were not entitled.

It appeared that the men were employed by Mr. Meade on the building above named, and, according to the custom of the trade, were allowed, during the months from May to November, one hour, viz. from two to three o'clock, for dinner; but after that date the hour was not allowed, as nightfall came on earlier. On the 20th October the foreman told the men they should work during their dinner-hour, or 2s. per week would be deducted from their wages. The men, however, left off working on these terms on the following Saturday. A newspaper controversy then ensued, in which Mr. Meade stated publicly, "that the men had left his employment because he refused to discharge workmen that he had employed upon other contracts, and to whom he was paying the same rate of wages;" also, "that the complainants had been *told* to work the time for *which they had been paid*, and refused to do so, therefore taking money which they had no right to." The men sought for this imputation to be removed, as they might find it difficult to obtain employment elsewhere.

The magistrate suggested that the matters in dispute should be settled by the respective counsel, Messrs. Sydney and Curran, with an umpire; Dr. Gray, proprietor of the *Freeman*, who happened to be in court, being selected as such. On behalf of Mr. Meade it was alleged that he was bound, under a penalty of 25*l*. per week, to have certain works completed, and that the men combined to prevent the fulfilment of his contract.

The parties retired to the magistrate's room, and after a delay of an hour, returned into court, when Dr. Gray announced that an amicable arrangement had been arrived at, viz. that the workmen withdrew the charge of Mr. Meade not paying full rate of wages, and Mr. Meade also withdrew his imputation as to their receiving money improperly. Mr. Meade would not proceed with the summonses for combination, but consented to receive back into his employment such workmen as were willing to return.

LINGFIELD CHURCH WORKS.

Sir, — My attention has been called to the *Builder* of the 13th of November containing an article on page 765, headed, "Workmen at Lingfield, Surrey."

I fear the temper of the "Three Rubbers" must have been rather soured by their disappointment of being prevented for that turn pursuing their favourite avocation.

I never read anything more calculated to convey an unfair if not an injurious impression. It is quite true I can accuse myself of many "sins of omission," and not the least of one in which I think your correspondents will be able to sympathize,—the sin of not always practising that charity "which suffereth long and is kind; envieth not; vaunteth not itself; is not puffed up; doth not behave itself unseemly; seeketh not her own; is not easily provoked; thinketh no evil;"—but I cannot accuse myself of want of care of the sacred fabrics which have been committed to my charge in the character of incumbent.

My former parish church of Sompting, Sussex, bears witness to the contrary in its perfect restoration under the late Mr. Carpenter, as the last act of my incumbency; in which, as one of a committee of four, I bore (to me) a considerable cost in supplying the deficiency of funds: but it was done for God, and to Him be the glory that the work was brought to so satisfactory a termination.

My present church of Lingfield, which I have only occupied three years and a half, bears permanent indications of the same care. That some of the brasses and monuments are shamefully injured is a matter of fact; but whether done by careless or covetous rubbers and amateurs I am unable to say: the mischief was done before my incumbency: they are all in the same state in which we found them, to the best of my belief. But we have enlarged our church accommodation by moving the organ into its present position, and have restored in massive carved oak-work an entire compartment of the beautiful screen.

I am thankful to feel that my fitness for my position does not depend upon the opinion of your correspondents; but we have, at Lingfield, churchwardens who are unusually attentive to their duties in all matters relating to the parish church.

As to the present work of which your correspondents complain. The disappointed amateurs happened to come just as the workmen had opened their excavations to lay down a complete course of hot-water pipes. It is quite true that some of the mould and pavement had been put on one side for future use as required in filling up again, and had carefully been placed upon some of the brasses. Who ever heard of a brass being injured by carefully placing on it for a day or two a heap of dry mould? I should think it much more likely to be loosened and eventually lost by the practice of rubbing; and beg to suggest this idea to your correspondents. I can assure your readers that, a few days after this meets their eye, all will be quite clean and uninjured.

It is only just to Mr. Attwood (of Lewes) and his workmen, to add that they have exercised the greatest care in doing their work. If, instead of a light tool being placed "on the interesting alabaster monument," your correspondents had found them chipping it with the chisel, they could have scarcely been more indignant. When they remark that I replied "I did not think they would *much* injure them," I meant, in a good-humoured manner, to express the idea they would not be *injured at all;* and of this I am fully assured; and I cannot help feeling that it would have been a great deal better if they had waited to see if *any* injury were done before they made such a communication.

Even if the writers of that article were connected with the parish, or if they had connection by descent with some one of the persons whose brass monument is in Lingfield Church, we think it would have been unjust to write in such terms before they had ascertained that some injury (however slight) had been done; but some persons are so inconsiderate that they think the length and breadth of a church can be excavated in the narrow space between pew and pew a sufficient depth to lay down a double course of hot-water pipes, and the earth disposed of as easily as *three amateur brass-rubbers can stand by and find fault.*

I really have not time to answer such communications; but it is only just to Mr. Attwood and his men to assure your readers, on *the authority of a careful inspection*, that no injury has been done; but that, on the contrary, the work has been conducted, and is likely to be finished, in a manner to give a well-grounded hope of perfect satisfaction in *every particular.*

James Fry,
Incumbent-Curate of Lingfield, Surrey.

*** All lovers of ancient memorials will thank our correspondents of last week for their protest and the good result. The correctness of what they stated is confirmed as well by the excellent incumbent's reply as by another letter from a visitor to the church. Mr. Fry has called Christian Charity into the field, but, in truth, she has never been absent, for our correspondents' letter is couched in most courteous terms, and simply asks for the covering up of the memorials. We are very glad to hear from the incumbent that, notwithstanding the omission, the brasses have not been damaged. We may add that we have since received a letter, amongst others on the subject, from Mr. Attwood, of Lewes, by whom the work is being done, to the same effect as Mr. Fry's, and complaining of the "meddling" of our correspondents. If there had been a few such "meddlers" in times gone by, there would be less cause to grieve in visiting our parish churches than is now found. The authorities at Lingfield have some exceedingly interesting memorials, and are bound to preserve them for the advantage and information of posterity.

Steam Sledge. — At Irkoutsk, in Russia, a steam sledge has been invented. It consists of a locomotive and a carriage, the ice serving in place of rails. The inventor expects shortly to have the model completed, and to put two trains into regular service, one on the Amour road, and another on that of Moscow.

THE NINE-HOURS MOVEMENT: GREAT MEETING IN EXETER-HALL.

On Thursday evening, the 11th, a very numerous meeting of building operatives, including carpenters, joiners, stonemasons, and bricklayers, was held in Exeter-hall, to obtain a reduction of the present hours of labour, with a continuance of the present rate of wages. The hall was crowded.

Mr. R. W. Grey, stonemason, was called to the chair, and in opening the proceedings congratulated the meeting on the aspect that the movement had assumed since they last met in that hall. Then the joiners and carpenters were alone, while the masons were advocating another short-time movement; but now they had the masons, plasterers, and bricklayers with them. They now assembled in weekly conference, representing their respective trades. Its proceedings augured well for the cause; and, if they had full faith and confidence in the conference, they would carry the nine-hours movement. The conference was a gathering of the building trades such as had never before taken place in London or in England; and, if an isolated body of the trade could carry the point, what could they not do if they were all united? The nine-hours movement was agitated from April, 1853, to 1854, by an isolated body of the trade, and the employers tendered an extra sixpence as an instalment; but now they wanted the nine hours and the sixpence too. He trusted that no one would move an amendment, as it would be quite unnecessary at this stage of the proceedings, for he fully expected that their employers would concede the nine-hours movement. If that were to be so, there would be no necessity for a further meeting; but if they gave a negative answer, another meeting would certainly be required, and ulterior measures would have to be taken. Their employers, he expected, would not only do this, but they would also abolish systematic overtime. A large number of those who originated the movement in 1853 had gone to Australia, where the masons had been successful in obtaining eight hours in Victoria; but all they wanted in London was a reduction of one hour.

Mr. Robson, joiner, proposed the first resolution, as follows:— "That this meeting, after a calm deliberation on the nature of the various obstacles that arise, and in consequence retard the progress of the artisan of this country in his pursuit of scientific knowledge, is of opinion that the number of hours we devote to labour is too great to allow us sufficient time for mental improvement, and for the development of the inventive genius with which the working classes are so largely endowed." The subject of the nine-hours movement was too well known (he said) to require any exposition; but the object of the resolution was to obtain a remission of the hours of labour, and thereby obtain opportunities for mental improvement and beneficial pursuits. There was a great deal of twaddle in the present day about the dignity of labour; but where was the dignity of the working man recognized? The progress of those reforms that would be beneficial to the trade was retarded from want of education. Although they were not properly represented in the legislature, they had to contribute constantly to the exchequer. The benefits to result from the shortening of labour would be the taking away the surplus labour of the market: destitution would be decreased, consumption of food and of manufacturing commodities would be increased, and periodical crises in the trade and commerce prevented. They were told that, if they consulted their employers' interest, they would best consult their own; but that was cant and humbug.

Mr. Wynne, a plasterer, seconded the motion. He denounced the present system as worse than the Spanish mines in Mexico, and the conduct of the privileged classes, the landlord and the capitalist, who arrogated to themselves the right to employ labour, and gave the working classes no time for instruction. Unless they could improve themselves so as to take a part in the great questions about to be brought forward in the course of next year, they would not be able to perform their duty to themselves or their country. He believed, for his own part, there was more honour and integrity in the working classes of this country than all the rest put together. The masters were in the habit of taking low contracts, and then placed some tyrannical foreman over the working classes, in order to make them work like slaves against each other. In his opinion, there ought to be a standard of measure and value, and then every man would know in a moment what really a day's work was.

The resolution was then put and carried.

Mr. Meade, joiner, then moved—"That, in the opinion of the meeting, the benefits resulting

from the proposed reduction will improve, socially, all persons in connection with the building trade, and the advantages accruing to the public generally from the introduction of machinery will fully compensate for any extra outlay which shall be made in consequence of the period of labour being shortened." By the proposed reduction they would improve all persons socially connected, not only with the building trade, but with others unconnected with it. The building trade numbered some 32,000 men, and if they introduced the hour per day less, they would bring from the surplus-labour market between 3,000 and 4,000 hands into a condition of work and bread. Mechanics' institutions were a failure, because the working man had no time to go to them. If their average rate of wages of 25s. 7½d. were increased, the public would derive the benefit of it, for they would have more to spend in food, and in physical as well as mental requirements.

Mr. Warne, a mason, seconded the resolution. Machinery, as hitherto conducted, had in its effects been baneful and destructive, and had crushed human nature; but, if well regulated, it would be a vast blessing. What they wanted was a fair day's wages for a fair day's work.

The resolution was put and carried unanimously.

Mr. Noble, bricklayer, then moved, and Mr. Fisher, plasterer, seconded, the third resolution:—"That this meeting pledges itself to support, and by the use of all constitutional means to carry out, the principles embodied in the memorial, viz. the reduction of the hours of labour by one hour per day, at the present rate of wages."

The resolution was put and carried by acclamation.

Mr. Creamer, joiner, proposed that it was expedient to a speedy, effectual, and permanent realisation of the objects in view, that a United Building Trades Association should be formed; but, on a suggestion from the chairman, to the effect that the proposition was superfluous, the "conference" already formed fully meeting the object in view, the motion was withdrawn, and the best thanks of the meeting having been given to the chairman for his ability in presiding, the assembly separated.

IRELAND.

THE necessary plans are being made out for the construction of the Banbridge and Lisburn Railway, by Mr. Blakiston, C.E.

The proposed corn-exchange and markets at Dundalk, for which first and second premiums were awarded respectively to Mr. Murray and Mr. John Neville, of that town; afterwards to be built according to the designs of Messrs. Bellamy and Hardy; and, thirdly, we believe, under the directions of some other gentleman, are again on the tapis, and tenders are sought for.

A new station-house and goods store are to be erected at Enniskillen, according to plans prepared by Mr. Wm. Murray, architect to the company.

We understand it is definitely arranged that Messrs. Deane and Woodward are to be the architects to the new club-house for the Kildare-street Club, to be built at the junction of that street with Nassau-street.

CRYSTAL PALACE.

On the 25th of November Mr. Pepper enters upon his daily duties here when the various collections of art and nature at, the Palace will be popularly illustrated; independent chemical and scientific lectures being also introduced. The success with which Mr. Pepper developed the resources—both for amusement and instruction—of the Polytechnic Institution is well known, and is a guarantee for still greater success in the Crystal Palace, the contents of which are so much more varied. The Handel Commemoration of June, 1859, is now closely occupying the attention of the committee of the Sacred Harmonic Society, as well as the officers of the Crystal Palace Company. The society, as before, undertakes the musical arrangements, and is already preparing the list of performers for this display. The publicity given to the 1857 Festival, and the wide-spread renown it gained, has already enormously increased the number of applicants, anxious to take part in the orchestra. The acoustical arrangements to render the Great Transept of the Crystal Palace favourable for the transmission of sound, want even more consideration than has yet been given to them. In the Tropical Department of the Palace will take place the great show of canaries and other birds, on the 22nd inst. and two following days. An important step for extending railway connection with the Palace has lately been taken, which promises the happiest results. A company has been created to form a junction of about two and a half miles in length, between the West London line at Kensington (that much ill-used line), and the West-end at Wandsworth. When this is done, the Crystal Palace will have direct communication with the Great Western, the North-Western, the Great Northern, and the Eastern Counties Railways. To the north of London, especially, this line will be a great convenience.

METROPOLITAN BOARD OF WORKS: MAIN DRAINAGE QUESTION.

AT the last weekly meeting of the Board, Mr. Bristow brought up a report from the main drainage committee, specifying the names of the engine manufacturers who had been asked to tender for the designing, constructing, and erecting boilers, engines, and pumps, within the metropolitan district, for lifting the requisite amount of sewage-water. The clerk read the report, which stated that the committee had addressed communications to fifteen of the principal manufacturers in the kingdom, furnishing them with the requisite information, and inviting them to tender. The names of the fifteen were:—Messrs. Boulton and Watt, Soho Works; the Butterley Company, Alfreton Works, Derbyshire; Messrs. Forrester and Co. Liverpool; Messrs. Hick, Bolton; Messrs. Simpson and Co. Pimlico; Messrs. Maudslays and Co. Lambeth; Messrs. Rennie and Co. Holland-street, Blackfriars; Messrs. Humphery and Co. Deptford; Mr. Laurie, Glasgow; Mr. Harvey, Hayle, Cornwall; Messrs. Napier and Co. Glasgow; Messrs. Hawkes, Crawshay, and Co. Gateshead; Messrs. Whitham and Sons, Kirkstall-road, Leeds; Mr. Kay, Bury, Lancashire; Messrs. Hawthorn and Co. Newcastle-on-Tyne. On the suggestion of Mr. Moreland, the names of Messrs. Easton and Amos were added; and, at the suggestion of Mr. Legg, those of the engineers who drained the Haarlaem Lake. Mr. Bazalgette, the engineer, stated that he had devoted as many hands as possible to the completion of the new copy of the subterranean survey, but with his present limited staff he did not expect that much progress would be made with it until the contract drawings for the main drainage were completed.

LIABILITY OF DISTRICT BOARDS OF WORKS.

Steel v. The District Board of Works at Greenwich.—This was an action brought (in Court of Exchequer) by the plaintiff, the owner of two houses, for injuries sustained by the leakage of the sewers into his cellars. The question was the liability of the present Board for works constructed by their predecessors.

Mr. Baron Martin held that they were liable, and that the question for the jury was, whether the defendants had used all possible diligence in repairing the sewers.

The jury returned a verdict for the plaintiff, damages 50*l*.

RATING WATER-MAINS.

The Churchwardens of Hampton v. *The West Middlesex Waterworks Company.*—The question for the consideration of the Court in this case (tried at the Queen's Bench on the 6th), was, whether the West Middlesex Waterworks Company were liable to be rated for the relief of the poor, for that portion of their watermain passing through the parish of Hampton. The company obtained their water-supply from the Thames at Hampton, through which parish their mains run, but from which they derived no profit. The respondents claimed the right of rating the mains in reference to the profit derived by the parish through which the water was conveyed; but the appellants contended that they ought to be rated only in respect to the land actually occupied by them, and not with regard to the profits derived by the company from the mains.

Mr. Lush, on behalf of the parish, submitted that the simple question was, whether in rating the mains they ought to take only the value of the land through which they passed, without reference to the purposes for which it was used, or whether the profits ultimately derived by the conveyance of the water through the mains should not be taken into account. The right principle, he contended, to adopt, was to take the whole profits made by the company, and to divide them in proportion to the land occupied by the mains for the conveyance of the water.

Mr. Bovill having been heard on the part of the company against the rate,

Lord Campbell said the Court had no doubt that the main pipes were rateable, but the principle upon which such rating was to be made was a very important question, and required consideration. Under these circumstances judgment would be deferred.

PROCEEDINGS UNDER METROPOLITAN BUILDING ACT.

RAILWAY BUILDINGS.

AT the Marylebone Police-court, before Mr. Long, a case was heard on the 6th inst. "Mr. Baker, District-Surveyor of St. Pancras, *v.* Hack and Son," under section 41, for neglect to give notice.

Mr. W. L. Donaldson, who attended as solicitor for the district-surveyor, said, that although the summons was for a penalty for not giving notice, it was well understood between the parties that it was to try the question whether the building in dispute was exempt or not from the superintendence of the district surveyor. The facts of the case were:—The North-London Railway Company, for the purpose of forming their railway, purchased property at Camden-town, and amongst other, some houses in Little Randolph-street. Some of the houses were pulled down, and the railway was formed over the ground. The other houses remained standing, including the house in question, No. 32, Little Randolph-street. This house had recently been gutted by fire, and the works in question were done without any notice, under section 38 of the Act. He understood that it would be contended that the house in question was exempt under section 6, and under the 12th paragraph. The 6th section declared, that certain buildings and works should be exempt from the operation of the first part of the Act, and paragraph 12 included, "The buildings belonging to any canal, dock, or railway company, and used for the purpose of such canal, dock, or railway, under the provisions of any Act of Parliament." Now this house, although belonging to the railway company, was not used for the purpose of the railway, and he contended that a building must be actually used for the purposes of the railway to render it exempt.

Mr. Brown, counsel for defendants, said there was no disagreement as to the facts as stated; but he considered the true construction of the clause rendered the words distributive, or disjunctive: and that as well buildings belonging to a railway company as buildings used by them were exempt. It would otherwise lead to this anomaly:—The company might a month hence put a station-master in the house: it would then be used, and be exempt, and if now held not to be exempt, it would one month be exempt, and the next not. The engineers of the company were doing the works in question for the company, that is what the Building Act contemplated, that the buildings should be under their superintendence. The Act intended that the buildings once under the operation of it should continue so; but in this case, if his view were not adopted, this building would at one time be under the operation of the Act, and at another not. He considered that the house, having been purchased for the railway, though not actually used, was exempt. If the magistrate held otherwise, he should request a case to be stated for a superior court, as it was a question of considerable importance to the railway company.

Mr. Long said, if he stated a case he should state the fact that the house was not used for the purposes of the railway. He was clearly of opinion that it must be so used to render it exempt.

Mr. Brown.—If that were so, his clients would submit to a judgment against them, as he was afraid that they would not gain anything by contending on a case so stated.

The magistrate gave judgment for the district-surveyor, and costs, the defendants undertaking to do the works required by a notice served by the district-surveyor.

COVERING OVER YARDS.

AT Marlborough-street Police-office, on the 11th inst., Mr. Higgs, Charles-street, was summoned for an alleged infraction of the Building Act.

Mr. Jennings, district surveyor of Marylebone, appeared in support of the proceedings; Mr. Tarring, architect, was for the defendant.

The facts of the case appear to be these:—The defendant has thrown a skylight over the yard at the back of the house, shutting in the place up to the first floor, but leaving space for ventilation from the skylight. The 29th section of the Building Act says,—"Every building used, or intended to be used as a dwelling-house, unless all the rooms can be lighted and ventilated from a street or alley adjoining, shall have in the rear or on the side thereof an open space, exclusively belonging thereto, of the extent, at least, of 100 square feet;" and it was contended that the covering over the yard, even though there was no deficiency of light or ventilation, was in contravention of the Act.

Mr. Jennings proved that at the back of the house in question there was no open space, as required by the Act.

After a good deal of technical discussion, and several attempts to arrive at a common understanding as to the meaning and effect of various clauses of the Act, which was condemned on all sides as contradictory and confused,

Mr. Beadon said he would take till Monday to consider his judgment.

On that day accordingly,

Mr. Beadon said,—this case is before me as to the construction of the 29th section of the 18 & 19 Vict., c. 122, the Building Act, and is certainly a question of great importance, as stated by the district surveyor, Mr. Jennings, inasmuch as my decision will affect a very large amount of property in Charles-street, and that neighbourhood, where most of the houses are being converted into warehouses or shops on the whole of the ground floor, whilst the upper parts are used as dwelling-houses; and the real question to be decided is, whether the words "dwelling-house" in that section must necessarily comprise the whole of this building. The house in question is entirely lighted from Charles-street on the front, and from the first story upwards well lighted at the back. The ground floor in front is a shop for pianos exposed for sale, communicating with a small room which originally was about two-thirds of this court, bounded by high external walls, but having a small area to the eastern side. That area is now recently covered in, the small room and small area being converted into one warehouse-room, amply lighted by a large skylight, and I am to decide whether this is so to be considered part of the "dwelling-house" as to oblige Mr. Hills to leave an open space in the rear or side of this warehouse equal to 100 square feet, for the purpose of ventilation and air. Now I apprehend that this section of the Act was intended to apply to "dwelling-houses" where the inner rooms were lighted by a false light from the front rooms, where used as bed-rooms, and could by no means get light and ventilation in any other way, except they were forced to leave an area from which such external light and ventilation might be obtained; and I cannot help observing that there seems to be no power in the Act to enforce ventilation from the very area when left, though no one would probably neglect it, as it would increase the value and comfort of the house; but in this case there would be no necessity for such ventilation, as the skylight would be ample for all such purposes, and the area left might be a useless *cul de sac*, and the receptacle of nothing but dirt. Now, it is admitted that this new room is not, nor is it intended to be used as a dwelling-room; and, though the words of the section refer to every room, I do not think I shall be straining the fair and liberal construction of a very stringent Act, by deciding that the words mean every room in the dwelling-house, and that this new room is, and is intended to be, a warehouse, and forms no part of the dwelling-house. The summons will therefore be dismissed.

Books Received.

A Handbook for Travellers in Kent and Sussex; with Map. London: John Murray, Albemarle-street. 1858.

We are glad to find Mr. Murray, of late, turning with the tourist-tide upon our own shores, inlands, and uplands: it is to be hoped his volumes will lead many to "discover" their own country. The present volume, with its various projected routes, will be found of special interest to metropolitans, both from the proximity of the ground gone over, and on account of its interest, historical and artistic, as well as geological and botanical, and the varied beauty of its physical aspects generally. Much care has been taken to suit the convenience of the tourist, and enhance his interest in the descriptions of the many routes and tours pointed out, and which, it is stated, have been drawn up from a careful personal exploration of the country, and the most recent information that could be obtained. Revision, however, may still be usefully attempted. We are disposed to think, indeed, that some part of the MS. must have been prepared longer ago than the rest, and adopted without correction. For example, taking a morsel of Sussex which has at different times had notice in our pages, Sir Alexander Cockburn is named as the tenant of Wakehurst Place, although it is several years since he had anything to do with it; and in speaking of Lindfield Church, it is said to contain a mural painting of the Decorated period, but this was whitewashed over eight or nine years ago. The "unusual sepulchral effigy impressed or incised on three glazed tiles," mentioned as being in this church, is not there, but at Lingfield (Surrey), and is described in our notice of that interesting church.* Again, in the notice of Horsted Keynes (which is essentially a Norman church, not Early English), Archbishop Leighton is said to be recorded by a slab bearing his name only; but in truth an altar-tomb, fully inscribed to his memory, has been recently erected in the churchyard, on the south side of the chancel. These, however, are points which will be rectified in a fresh edition.

The Introduction gives at some length an interesting account of the extent and history, antiquities, products and manufactures, geology and traveller's view, of both the counties treated of, with numerous skeleton tours, the last of which, "an artistic and antiquarian tour," we may print as a specimen:—

Kent.—Rochester Cathedral and Castle. Pictures at Cobham. Maidstone Church and College. Leeds Castle. Faversham Church. Davington Priory. Canterbury Cathedral and St. Augustine's College. Churches of Minster and St. Nicholas at Wade. Roman remains at Reculver and Richborough. Town of Sandwich. Church of St. Margaret's at Cliffe. Barfreston and Patrixbourne Churches. Dover Castle. Hythe Church. Saltwood Castle. Ruins of the Manor-house at Westenhanger. Roman remains at Lymne. Tunbridge Castle. Penshurst. Hever. Pictures at Knole. The Moat House, Ightham. Sore Place, Plaxtole.

Sussex.—Remains of Archbishop's Palace at Mayfield. Battle Abbey. Monuments in St. Thomas's Church, Winchelsea. (Collections at Ashburnham Place, not at present shown.) Hastings Castle. Pevensey (Roman walls of Anderida and Mediæval Castle). Hurstmonceux Castle. Lewes Castle. Churches of Old and New Shoreham. Sompting Church. Broadwater Church. Steyning Church. Arundel Castle (pictures in the castle not shown). Amberley Church and Castle. Parham, pictures, armour, and various collections. Climping Church. Chichester Cathedral. Bosham Church. Goodwood (pictures at). Boxgrove Church. Up-park (pictures, china, &c.). Ruins of Cowdray. Petworth (pictures and sculpture).

In Section I, of the body of the work, we have Kent divided into eleven fully described routes, including,—the Thames—London by Greenwich, Woolwich, and Gravesend, to Margate. London to Chatham (rail). The Isle of Sheppey, Chatham to Canterbury, Rochester to Maidstone, London by Beckenham and Bromley to Sevenoaks; Knole; Westerham, Reigate by Godstone, Hever, Penshurst, Tunbridge, Ashford, and Folkestone, to Dover. Ashford to Canterbury, Canterbury to Margate. Canterbury, by Deal and Walmer, to Dover. Canterbury, by Barsham-down, to Dover.

In Section II, the other moiety of the volume, Sussex is divided into nineteen routes similarly treated of, comprising Tunbridge to Hastings, Hastings to Ashford, London to Brighton, London, by Lewes, to Hastings; Brighton to Chichester, East Grinstead to Hastings, Horsham to Shoreham, Godalming by Petworth and Midhurst, to Chichester.

The book is seasoned with the result of much antiquarian reading. As an example we may give a part of the author's account of

The Ironworks of Sussex.—"The oldest existing article of Sussex iron remains in Burwash Church, and is a cast-iron monumental slab, with a cross, and an inscription in relief. It is of the fourteenth century, and probably unique. The inscription, in Longobardic letters, is 'Orate P. Anneme Ihone Collins,' Mistress Joan Collins having possibly been an 'iron-mistress' at Socknersh furnace, in Brightling, where the Collins family was settled. Andirons and other articles of the fifteenth century are still found in some numbers in old mansions and farmhouses; and work of the sixteenth century is comparatively common. Some of the banded guns of wrought iron preserved in the Tower of London, and dating from the reign of Henry VI. were of Sussex manufacture. A mortar, formerly remaining at Ridge Green, in the parish of Frant, is said to have been the first made in England; and it is probable that most of the pieces employed in our continental wars of the fourteenth and fifteenth centuries were manufactured in Sussex. These hooped guns were superseded by cannon cast in an entire piece, and bored, as at present. The first of these iron cannon ever produced in England were cast at Buxted, by Ralf Hogg, or Hogge, in 1543 (35 Hen. VIII.). At the commencement of his work he was assisted by French and Flemish gunsmiths, but afterwards 'made by himself ordnance of cast iron of diverse sorts.' The Hogge family resided at Hog House, near Buxted Church; and over the door of their ancient dwelling their rebus, a hog, with the date 1581, may still be seen. The name seems to have become confounded with that of Huggett; since at Huggett's furnace, between Buxted and Mayfield, the first iron ordnance is said by tradition to have been cast:

'Master Huggett and his man John,
They did cast the first can-non'—

runs the local rhyme. Many Huggetts still carry on the trade of blacksmiths in East Sussex.

The trade increased rapidly during the sixteenth century, when many Sussex families, enriched by it, assumed the rank of gentry."

John Norden, in his "Surveyor's Dialogue" (1607), asserts that there were in Sussex nearly 140 hammers and furnaces for iron, each of which consumed every twenty-four hours from two to four loads of charcoal. But there was, he thought, some doubt whether the clearance was altogether hurtful, since "people bred among woods are naturally more stubborne and uncivil than in the champion countries."

"The Sussex iron varied in quality. 'Some,' says Camden, 'was more brittle than the Spanish iron;' but that worked at the Ashburnham forges excelled in quality and toughness, 'and I have been assured by smiths who have used it,' says Mr. Lower, 'that it was no wise inferior to the Swedish metal, generally accounted the best in the world.' The casting of brass was extensively carried on, and bell-founding successfully practised. (A new peal for Eastbourne was cast at Chiddingly in 1651: the bells of Hailsham were cast on Bell-bank, a spot near the town.) Steel was manufactured at Warbleton (where is a place called 'Steelforgeland') and at Robertsbridge. The site of an iron-work was chosen near to beds of ore and to some available water-power. Artificial ponds were generally constructed by dams of earth against the stream, with an outlet of masonry for the supply of water, by means of which the wheel connected with the machinery of the hammer or the furnace was set in motion. Many of the finest sheets of water in Sussex are thus due to the iron-works. Other meadows, once converted into ponds and pools, have again been drained.

The trade reached its greatest extent in the seventeenth century; and, as late as 1724, the iron manufacture was still considered the chief interest of the county, but the decline had already commenced. The vast consumption of wood rendered the production of iron in this district more expensive than in the localities where coal-mines and iron-ore are close together: hence competition with them became hopeless, though the works continued as late as 1750. Farnhurst, in West Sussex, and Ashburnham, in the eastern division of the county, were the last places at which they were carried on. The Ashburnham furnace was in work at the end of the last century."

One other relic of the Sussex works should here be mentioned: the balustrades round St. Paul's Cathedral, weighing, together with seven gates, about 200 tons, were cast in the parish of Lamberhurst, at a cost of 11,202*l.* 0s. 6d. A furnace near Mayfield disputes this honour, which really, however, belongs to "Gloucester Furnace" at Lamberhurst, where the annual consumption of wood was 200,000 cords.

* Vol. XV. p. 569. Our correspondents of last week, "Three Rubbers," elsewhere referred to in the present number, spoke of damage done to two other tiles of the like kind in the same church, Lingfield.

VARIORUM.

"A Guide to Typography, literary and practical; or the Printer's Hand-book, and the Author's Vade-mecum;" By Henry Beadnell, printer (Bowering, 211, Blackfriars-road, and 3, Raquet-court, Fleet-street), is a small work, in course of issue, in fourpenny numbers. The first of these only having as yet been published, of course little or nothing can be said as to the merits of the work as a whole; but sufficient already appears to show that the author is not a mere compiler, but is one who brings original thought as well as ability, learning, and experience to his task; so that this little work cannot fail to be a most useful one, not only to printers, but to all who desire to possess a critical knowledge of the English language and the preparation of MSS. for the press.

Value of Land in Gloucestershire.—At a sale held by Mr. H. Allen, of Marshfield, at Cromhall, lot 2, comprising 3a. 3r. 28p. of pasture-land, the yearly rental of which was 8*l.* was sold at 400*l.* or fifty years' purchase, and to a man having no other property near.

Miscellanea.

Provident Dispensaries.—A meeting of the members and friends of the Coventry Provident Dispensary was held on the 21st ult. in that town, the Mayor in the chair, when various resolutions were unanimously agreed to in favour of such institutions, demonstrative of the success of that at Coventry, and recommendatory of the establishment of similar institutions elsewhere, and especially at Warwick, where a movement is afoot for the purpose. Mr. Smith, the founder of provident dispensaries, spoke at some length, and alluded to the formation of a society for the extension of such self-supporting dispensaries.

London Vegetation.—Travelling a few days since through some of the London squares, the near approach of Christmas was evident by the bareness of the branches—scarcely a leaf remaining. Having need, on the same day, to visit the neighbourhood of the Crystal Palace, the contrast was striking, for there the leaves had a thick coat of rich russet hue, which, although a fading glory, was pleasant to the eye. Breathing the clear bracing air, although it was November, and comparing it with the atmosphere which hangs over the metropolis, we could not but reflect that, like the leaves of the trees in large towns, the life of man falls short, and many thousands die before their natural time.

Painted Glass for the University at Sydney.—The *Court Circular* of the 16th says—Messrs. Clayton and Bell had the honour of submitting to the Queen and Prince Consort specimens of painted glass executed by them for the windows of the University at Sydney, New South Wales. Sir Charles Nicholson, provost of the University, was present to explain to Her Majesty the plans of the building. We may add that the portions submitted, of their large commission for the University of Sydney, filled the whole of the windows of the throne-room, and comprised life-size portraits of royal personages, founders of Oxford colleges, founders of Cambridge colleges, and several of our great worthies of literature and science, executed in stained glass.

Memorial of the late Lord Sefton.—A mural tablet, foliated (four foils out of a square), has been erected in Sefton Church, Lancashire, to the memory of the late Lord Sefton. A sculptured border follows the line of the tablet: within it is a "cross moline," on a black ground, with a shield upon it, inscribed, "Here is buried Charles William, 3rd Earl of Sefton. This tablet is placed here by his sorrowful wife and children, who love to cherish the memory of his warm and noble heart. He died August 2, 1855, aged 59." Encircling the cross are the words "Thy will be done." The materials of the memorial are a fine sandstone and marble. It is 3 feet 6 inches in diameter, and was executed by Mr. George Shaw, Upper Mills, Saddleworth.

The threatened Closure of Colchester Castle Grounds.—A map has been forwarded to us showing the proposed enclosure of the Castle of Colchester in private grounds and appropriation of part of the Bailey as a cattle-market. No wonder "the ghost of Philip Morant," the Essex historian, protests, in the *Essex Standard*, against the threatened desecration of a spot so sacred in local history and tradition as the Bailey and the Castle of Colchester. A counter movement for the formal conversion of the locality into a public park or recreation ground, with a few ornamental adjuncts, appears to be the best possible way to take the wind out of the corporation sails and arrest their progress cattle-market-wards.

Another "Palace of the People."—It is proposed, say advertisements, to erect and furnish at Muswell-hill, Hornsey, a structure not much unlike that at Sydenham, but more easily reached by a great portion of the people who dwell on the left or Middlesex side of the Thames. An estate of 450 acres, it is said, has been obtained by the promoters, who have registered a prospectus under the Limited Liability Act, and they contemplate selling 300 acres for the erection of dwelling-houses, villas, &c. On the remainder "The Palace of the People" is to be raised. This palace and its grounds will be appropriated to various educational and recreative objects. There will be departments of English history, geography, astronomy, geology, and mining. Refreshment-rooms and accommodation for musical entertainments will be provided. Attached to the main building will be a nursery ground, model farm, and model cottages. Archery, cricket, and equestrian exercises will be arranged, and space for promenades, &c. will be set apart. The whole of the objects contemplated by the projectors of this scheme can, they assert, be executed at less than half the cost of the Crystal Palace.

CAST-IRON COLUMNS.—Twelve cast-iron columns, said to be the largest in the United States, are now in process of construction at Cincinnati. They are each 50 feet in height, 4 feet 2 inches in diameter, weigh between 200 and 300 tons, and will cost about 30,000 dollars. They are designed for the State House, Madison, Wisconsin.

STEELING OF ENGRAVED PLATES FOR PRINTING.—The specification of an important invention was recently filed by Mons. Jacquin, the patentee. The invention consists of the application of a facing of iron, by means of electricity, on to copper and other metallic printing surfaces. The coating may be removed when it has become a little worn, and a new one given, without injury to the plate operated upon. This may be repeated as often as may be required; so that for all practical purposes a plate may now be rendered almost indestructible. A lecture upon the subject is to be delivered before the Society of Arts, by Mr. F. Joubert, who is carrying out the process under the patent for this country.

WATER FOR DOGS.—A correspondent in your last number suggests that, while drinking-fountains are being erected, it will be well to think of the poor dogs, and let them have a chance of a draught of water. Allow me to say that this has been done at two fountains which have been erected in the town of Derby. It is easily effected, and without any expense. The water from the basin above is conducted into a trough below, which does not project from the wall, and from that trough it runs into the sewer, instead of running into it at once from the basin. It is very pleasant to see how much these dumb creatures appear to enjoy a cool and refreshing draught in hot weather, and the large numbers who stop to drink prove how much it is appreciated by them. —J. L.

ARCHITECTS AND CHANCERY.—SIR,—Would some of your readers be good enough to throw light upon the following occurrence:—A house belonging to a ward in Chancery wants repairing: an architect is called in, and makes a full report upon the alterations necessary to make it habitable for a good tenant, and to preserve the building from going to decay, and furnishes complete drawings, showing the entire scheme, with a probable estimate. The whole is submitted to a lawyer, in order to be laid before the Lord Chancellor for his sanction; but the lawyer says it is all useless,—that what is required is, that a builder (not an architect), should make an affidavit that certain repairs are necessary, and that such only would be allowed for, thus entirely setting at nought the architect's trouble, and ignoring his studied opinion. Would not the architect's assurance in his report obviate all this procedure? I want to know, can this be? If so, it is the legal profession paying the architectural profession a compliment with a vengeance. It is, in fact,—"I don't know you."—JAMES BLAKE.

ELECTRO-TELEGRAPHIC PROGRESS.—The forlorn hope of the Atlantic cable now appears to be an offer made by Mr. Hughes, an American patentee, to try it with his printing telegraph, which, by a nice adjustment of instruments at both ends of a telegraph, prints each letter of a word by a single impulse; that it may afford less opportunity for the interference of the magnetic storms and earth currents, by which the mass of iron-wire covering of the Atlantic cable is now admitted to have bemuddled the signals, than by any method which requires more than one transmission for each letter. The directors have not, however, as yet accepted the offer. Meantime they are having the shore end laid down at last at Valentia, and perhaps they await the result before considering Mr. Hughes's offer. There is talk of our Government having already caused soundings to be taken for the laying of another cable, but we cannot trace the rumour as yet to any reliable authority. The *Dundee Advertiser* urges a trial of Mr. Lindsay's singular idea of a telegraph without a cable at all. It is quite true that Mr. Lindsay succeeded in telegraphing across Portsmouth harbour by means of electricity, and without a crossing cable; but something short of the Atlantic, we suspect, should be Mr. Lindsay's next stretch. It is by means of a sort of electrical collector, stretched along the coasts on each side, and at right angles or so to the crossing path, that Mr. Lindsay proposes to form submarine telegraphs without crossing cables. It is said that a "British and Canadian Submarine Telegraph Company (limited)" is in course of formation. They propose to cross the Atlantic from Galway to Quebec. The capital of the company is set down at 750,000*l*. The cable is to contain six to nine conductors, and a dividend of nearly 15 per cent. is calculated on.

NEW BUNHILL-FIELDS BURIAL-GROUND, ISLINGTON.—CAUTION TO CONTRACTORS, &C.—At the Clerkenwell Police-court, on Wednesday, the 17th instant, Mr. Fordyce, a contractor, and Chinnery, a carter, were convicted and fined under one of the "annoyance" clauses in the Islington Local Act, for carrying through Brewers-yard, Islington, a quantity of rubbish, and shooting it into the old burial-ground. Mr. Warr, the sanitary inspector, and Mr. Butterfield, the registrar, were called as witnesses; the cases were conducted by Mr. Layton, the vestry clerk.

COVERING BACK YARDS IN METROPOLIS.—*Imprimis*, the clause in Building Act, 1855, refers to new buildings; the Act also does not define "on what floor or level" the open area is to be left, just the same want of definition as is apparent all through the Act. This might be on flat formed over ground-floor (roof). We must, however, if we want anything intelligible, revert to the Act of 1844, sechedule K, page 148: this allows back-yards to be covered in, if they can light and ventilate from any area to extent of three-quarters of a square above level of second story. In most cases of shops, however, if these can be lighted and ventilated from street, it should be allowed that yards may be covered in: it resolves itself into a question simply of amount of light and ventilation. It is a hardship where a shop is small, and is sought to be enlarged, to urge objections to enlarging it, as ventilation, if not light, is often improved by such enlargement. —VIGILANS.

THE DRINKING-FOUNTAIN MOVEMENT.—At a vestry meeting of the parish of St. Andrew, Holborn, held on 9th inst., Mr. S. Gurney, of Lombard-street, made an offer to erect, at his own cost, a drinking-fountain, to be placed on Holborn-hill. It was unanimously resolved to accept the offer, the rector and churchwardens being requested to fix the site. A fair example to all the other metropolitan districts is thus being set by Holborn, and it is to be hoped that St. Pancras will have the solitary glory of representing the pot-house interest in London.——At the Court of Common Council for the City of London, held on 15th instant, Mr. Anderton gave notice of the following motion:—"That it be referred to the City Lands Committee to examine and report upon the desirability of erecting, for the benefit of the working and labouring classes, public drinking-fountains within the City of London, with powers to confer with the Commissioners of Sewers thereon, and if necessary the Metropolitan Board of Works; and should the same be found desirable, then to ascertain the sites where they would be most convenient and useful; also the probable cost of the erection of each of such fountains, and the probable annual expense of maintaining the same when erected, and to suggest the means for defraying the costs and charges of erecting and supporting the same, whether by voluntary contributions or otherwise; and if by voluntary contributions, that this court do subscribe towards the same such sum as the court may hereafter in its wisdom think fit."——The committee to whom the Leicester council referred the subject of drinking-fountains report that their sub-committee advise the erection of a mural fountain of white Sicilian marble on the gaol wall in Highcross-street, at a short distance from the opening in Freeschool-lane, according to a design submitted to them. The cost will be about 12*l*. or 13*l*.; and as the site appeared to be unobjectionable, the committee recommended that the construction of this fountain be at once proceeded with, leaving the site and design for other fountains for further consideration.——It appears, from the proceedings of the Stockport Town-council, that the mayor has received a communication from Mr. R. H. Greg, of Norcliffe, near Styal, in which that gentleman offers to furnish a number of drinking-fountains for the use of the inhabitants of this borough, leaving the selection of sites for their erection to the General Purposes Committee.

EPITAPH IN MEDMENHAM CHURCHYARD.—I inclose you a little bit of rustic verse, truly from the heart, and not from the head, which I saw in this pretty churchyard, in Oxfordshire, near the the Thames. It is on the tombstone of a young mother who died, leaving her husband and one child. If they are half as touching to you as they are to me, I am sure you will insert them:—

"Blossoming rose, blooms with the morning sun,
Just looks gay, withers, and then is gone.
Pardon my sins, Almighty God, I pray,
Forgive them me, and take me hence away.
Husband, farewell, my life is past;
My love for you so long did last.
I pray no sorrow for me make:
Love my child for my sake."

EPSILON.

COLONIAL MINING JOURNAL.—The first number of a new journal so named has been forwarded to us from Melbourne. It is devoted to mining, railway, and share matters, and promises well, although the price (1s. 6d.) in these golden regions is rather beyond what we are accustomed to in the old country. We are glad to see such familiar traits in its advertising columns as "Doulton's glazed stoneware," with the well-known drainage and water-pipes, for sale at Melbourne. The number contains various interesting maps and sections of auriferous districts.

METROPOLITAN DRAINAGE.—It is sincerely to be wished and hoped for, that as the winter is now approaching, and gives good time for steady reflection, that the ratepayers generally of London and the suburbs will open their eyes to the great fact that upwards of ten millions sterling will soon be thrown amongst the large contractors and property-holders *for dispersion*. But will the public of the metropolis be benefited by it?—and if so, will it be permanently, or is it to be only a make-believe, resulting in increased and extended annoyances, and the loss of valuable time and opportunities of doing good permanently and effectually by well-matured practical plans? If the ratepayers continue sleepy or lethargic, they must not grumble at future consequences.—PRACTICAL.

THE PROPOSED FINE-ART GALLERY FOR LEEDS.—An influential meeting of gentlemen desirous of forming a Fine-Art Gallery in Leeds has been held in the Town-hall there, to consider what means should be adopted to carry out the project. The mayor (Sir Peter Fairbairn) presided. It was decided, says the *Intelligencer*, to form an association, to be called "The Leeds Fine Arts Association," with the object in view of decorating and ornamenting the Town-hall with paintings, statuary, and other works of art, and a committee was chosen to confer with a committee to be appointed by the Leeds Town Council, as to the necessary steps to be taken to further the ob-object contemplated.

MONUMENTS.—A movement is being set on foot to secure the erection of a building commemorative of the genius of Josiah Wedgwood, at Burslem, the town of his birth.——A public meeting has been held in the Chester Music Hall, under the presidency of the mayor, to consider the best means of perpetuating the memory of the late Rev. Matthew Henry, the celebrated Bible commentator, who spent twenty-five years of his life in that city, and whose chapel still remains there. It was resolved that a subscription should be set on foot to erect a statue in the city, to found one or more scholarships at Oxford, and to print a cheap edition of his commentary. ——It is proposed to erect a colossal equestrian monument to Washington, in the centre of Washington-square, Philadelphia, at a cost of 75,000 dollars. This monument is to be of bronze, upon a massive granite pedestal, standing in a miniature lake, 6 feet deep, fed by fountain-jets, and surrounded by a massive iron railing.

LABOUR IN AUSTRALIA.—There are still many men unemployed. The railway works have been much interrupted by strikes, caused partly by the unfair treatment of the contractors, and partly by a foolish attempt on the part of the men to force from them a higher rate of wages at a time when this was impossible, as labour is still much in excess of the present demand. The contractors have, we think prejudicially to their future interest, taken advantage of the temporary superfluity of labour, not only to keep men working at the very lowest scale of remuneration, but otherwise so to treat them as to keep the men in a state of constant dissatisfaction. The *Melbourne Argus* says, "Before many months are over the contractors and their workmen will have changed positions, much to the loss and inconvenience of the former. The eight hours' movement is still gaining strength here. The wish of the smiths, boiler-makers, and other workers in iron to labour but for eight hours a-day, instead of ten, was opposed by some employers, who tried hard to frustrate their object, but eventually had to give way. In this case the public sympathy was altogether on the side of the workmen, who, when craving this boon, did not attempt to gain it at their employers' expense. They were all along willing to submit to a proportionate reduction in their wages, and for eight hours' work only asked to receive eight hours' pay. Some of the large employers refused to accede to the desire of their workmen as long as there was the least probability of their being able to stop the movement; but now eight hours' work a day is the rule in this, as it has long been in many of the out-of-door trades."

THE LEICESTER SEWAGE.—The committee of the Leicester Town Council who have charge of the sewage department report that they have requested the Sewage Company to state the terms on which they would be willing to continue the contract for lifting and disinfecting the sewage for a further term, and they have received a reply offering to accept 1,000*l.* a year for two years, free from all rent-charge and local taxation, the local Board making over to the company the contracts for emptying cesspools; and if there should be any profit on the year's work, then half of such profit to go in diminution of the 1,000*l.* The committee were of opinion that it was not expedient to accept these terms, and that it would be preferable to allow the company at once to surrender to the local Board the buildings, machinery, and plant now on the premises.

TENDERS.

For rebuilding Nos. 43 and 44, Duke-street, and No. 1, Princes-place, St. James's. Mr. Francis H. Fowler, architect. Quantities taken out by Mr. Morris Evans:—

Clemence	£4,290 0 0
Nottley	4,145 0 0
Burton	4,132 0 0
Nixon	4,106 0 0
Tyler	3,990 0 0
I'Anson	3,984 0 0
Rider	3,980 0 0
Patman and Fotheringham	3,970 0 0
Piper and Sons	3,935 0 0

For building Methodist chapel at Newark, Nottinghamshire. Mr. M. Sharper, architect. Quantities supplied by Mr. P. Bunting:—

Simpson	£3,874 0 0
Barefoot	3,421 0 0
Sherwood	3,420 0 0
Aaron and Son	3,207 0 0
Lark and Nightingale	2,968 0 0
Snewin and Co.	2,799 0 0
Ballstock	2,637 0 0
Smart	2,589 0 0
Sedgwick	2,070 0 0

For alterations of No. 11, Queen's-buildings, for Messrs. Goding and Co. Mr. F. Edwards, architect. Quantities not supplied:—

Smith	£535 0 0
E. O. Symons	492 0 0
G. Todd, jun.	487 0 0
Patrick	460 0 0
Chutter	444 0 0

For new school-house, Burton-street, St. Pancras. Messrs. Burnel, architects:—

Wagstaff and Son	£475 0 0
Wm. Piper	463 0 0
Nicholson and Sons	450 0 0
Piper	448 0 0
Geo. Mansfield and Son	443 0 0
Little and Son	439 0 0
J. and W. Sanders	430 0 0
Longmire and Barge	418 0 0

For the erection of a new farmstead at Timberland, Lincolnshire. Mr. Thomas Page, architect:—

Johnson and Retsey, Egsworth	£1,190 0 0
Stiles, Navenby	917 0 0
Fox, Lincoln	900 0 0
Bavin, Metheringham	898 5 0
Foster and Conyers, Saxilby	816 16 0
Pattinson, Ruskington	812 10 9
Huddieston, Lincoln (accepted)	700 0 0
Rollinson, Kirton Lindsey	656 0 0

For the erection of a villa residence at Hawkhurst, Kent. (Fittings not included.) Mr. H. H. Collins, architect. Quantities supplied by Messrs. Pearson and Doughney:—

	Stone Dressings.	Brick ditto.
J. D. Cowland, Notting-hill	£2,594 ..	£2,534
Jackson and Shaw	2,525 ..	2,500
J. Pickard	2,487 ..	2,474
W. Harvey, Hawkhurst (accepted)	2,329 ..	2,279

TO CORRESPONDENTS.

M. and S.—A. B., Hull (apply for the rules of the Societies. To state what you ask would require more space than we can give).—Index (those who regulate their course by the consideration of what will please the majority at the moment will find at the end of their career that it has been a tortuous one).—J. T. R.—E. E.—J. H.—J. F.—T. P.—Sussex.—P. D. (next week. Thanks).—T. M. R.—J. F. F.—A. and Co.—C. F.—Magistrate of Surrey.—T. R. W.—Clericus.—V. W. (in type).—L. and R.—J. W.—A. M. (apply to the surveyor of the local Board of Health).—E. L. G.

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Gresham House, Old Broad-street, November 9th, 1858.

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